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THE WILSON BULLETIN

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THE WILSON BULLETIN

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RIM ROCK AND SOLITAIRE

BY P. B. PEABODY

That picturesque yet highly exaggerated figure wherein Mr. Trippe once described the song of the Townsend's Solitaire (*Myadestes townsendi*) became for me, once, a fascinating lure to Wyoming wilds. The prospect of long rides beneath clear skies amid rock masses, over deep-lying gorges resplendent with flowers and resonant with song, so gripped me that, fairly before I realized it, I found myself domiciled in a little cabin at the rear of a church in Newcastle, Wyoming.

One radiant October morning a few weeks later, after staging across fifty miles of alternating sage plain and bull pine studded canyon-gorge, passing by picturesque, lone Inyan Kara, skirting, finally, the deep, sloping talus of venerable Sundance Mountain, I landed at the village of Sundance. It was a paradisaic place, nestling against the northeastern bosses of the Bear Lodge. A mile wide area to the west gave outlet, behind fringes of willows, to the spring fed waters of the Bear Lodge and of Sundance Mountain.

Next morning I sauntered down to the odd, deserted church, far down the mesa. On its weathered porch I soon stood transfixed, with every nerve a-tingle. Eyes went sweeping up the steeps of the northward bench of the Bear Lodge. Quaintly weazened cedars, writhed into the grotesque forms that Dore once so loved, were foiling the sombre masses of young bull pines. Here and there, amid the scattered talus, there peered gaunt, jutting crags. Far up the slopes there towered the primeval pines. Their dark green tops cameoed the clear sky; while many a blanched top bespoke the deadly work of the tiny beetles that were already so rapidly converting whole masses of ponderosa pines into festering, shattered, falling, and fallen personifications of the Abomination of Desolation. And then, as I ardently looked and listened, as if in token that life and beauty everywhere shall ultimately triumph over death and decay, suddenly there stole forth from somewhere up the heights, mysteriously, delicately, vibrantly, a rippling song that seemed to know little of limit or of tiring. It was the song of the Solitaire.

Thereafter, I heard it often. Wherever there were rim-rock, cedar, and bull-pine, right there often echoed the Solitaire song. One heard it from January to May; and again from August until January. For, the Solitaire is resident. Like all true residents he is ever hardy, and unchangeably cheerful. No storm can silence him, no cold benumb, no heat over-power. When fog masses hurtle tumultuously across the muffled crags, right there masterfully sings the Solitaire in fullest nuptial ecstasy. The song trickles vibrantly downward through the hiss and roar of the storm, among the pines, the devoted pair falling and rising, over and below each other, high in air. It is amid such environs, as if in mastery over storm fury, that the mating time melodies of this rarest of "thrushes" bear the most bewitching charm.

But, one must learn to see the Solitaire. That short flute note wherewith he calls his mate in love time, or his male companions in winter, is both ventriloquial and bewildering. No bird call is more tantalizing, more stubbornly baffling. Yet, by and by, as one listens intently, with many cranings of neck and stumblings of foot, at last one really sees him. "Frozen", he is crouching against the bark of a pine sapling of his own color. In a moment, with that characteristic "thrush" rigidity, he mounts the sapling. Here, with outstretched neck, he listens, and listens, apparently for another of his own kind. Meanwhile he watches, for the ever-persistent foe.

In winter one finds the Solitaire, ever, among the cedars. Not often is he to be found elsewhere. For here is his granary; here his hammock and his bed; and here his City of Refuge from sharp-shins and screech owls. And always, in the main, it is among the cedar clad rocks which crown the gorges that the Solitaire loves to dwell during the halcyon hours of his winter days. E. S. Cameron has considered the Solitaire to be only a wintral sojourner in the fastness of Montana. And I, also, once believed this eerie creature to be just a wintral habitant. But both of us were wrong. For when May comes with its scattered bevies of hurrying storm attendants, then does the Solitaire sink into silence—utter silence. And then do the sundry pairs begin to home-fly back to their castles in the air, along the margin, perhaps, of some canyon wall; or amid the numberless crannies of a rock seam in some little gorge; or even, amid the stumps of some small clearing among the pines. Or perhaps the nesting place may lie in a secluded bank which margins the storm stream that rages, betimes, down some narrow water-shed, on its way to the river and the sea. Here, at his nest location, the Solitaire has little to say. Like certain other of our western mountain dwellers, he has learned the value of

FIG. 33. Inyan Kara, a "mountain" with an elevation of 6,500 feet in Wyoming, on the western margin of the Black Hills, and a famous landmark in early history.

FIG. 34. Sundance Mountain lies across the valley that flanks the Bear Lodge Mountains. The erosion is at the southeast, where the mountain skirts the valley; note the talus at the base, right-hand. The southwest crest slopes gently and is heavily wooded with ponderosa pines, and a few deciduous trees. This is especially the haunt of the Solitaire. In the early days the Indians gathered at the southeast crest at sunrise to perform their mystical rites.

prudent silence. However, one whose ear has been trained to keenness may hear, once in a great while, just a stifled, distant call; or again more rarely still, a smothered reminiscence of the nuptial song may scatter its fragments amid the deepening dark of a summer evening.

Yet there is a call, apparently unknown to science, a strange, wierd, smothered, yet intensely vibrant warning cry, a barely audible "*Pur-r-v-v-e*". This caution call, which may be uttered by either sex, I first heard under a thrilling circumstance. I stood, once, among scattered pine stumps and a few isolated clumps of ground juniper on the Bear Lodge. I had just seen a single Sharp-tailed Grouse alight, with a subdued, fearsome, "*Whuck-whuck-whuck*". Statuesque, there the slender creature stood, for all of a minute, intently eyeing me. When the grouse flushed I followed it down a narrow gorge which broadened into a level area covered with small bur oak trees. Forty rods to the northward there lay the rim-rock verge of a narrow "pocket" canyon. Steeply walled it was, at the apex, with steep slopes leading down to the canyon-mouth. The heights were clad in tenderest willow and aspen greenery. Out from the canyon opening there swept a vista of rolling plains, with their outlines softened in the undulating air. Westerly frowned the Black Buttes. To the north, fifteen miles away, enwrapped in purple haze, lay beautiful, isolated Inyan Kara. One stood transfixed. Then, suddenly, out from the hidden mazes of the narrow canyon there came floating the *motif* of a Solitaire song. It was but a faint suggestion, yet that was quite enough.

But in just a moment, in quite the usual inconsequential way, a Solitaire came lilting up over the rim-rock and straight toward the observer. But, midway of the bur oak area, it seemed to sense the intruding human, and swerved, a moment, in midair. Then the canny creature alighted in a little oak; and, instantly, there came rasping its way through the still morning air that previously unheard warning cry, that creepy, pervasive, nasal "*Pur-r-v-v-e*". For a few moments, then, bird and man stood still, eyeing each other, though a full hundred yards apart. Then, for just one unguarded moment, the human eye swerved from its focus; and, the bird had disappeared!

Down through the oak-brush-covered space there wound a whilom water-way. Its course wound, tortuously, between banks of earth. Toughened by root-fibre, the bank edges over-hung. Intently traversing the deepest of these sections, I came, at a sudden turn, upon a sitting Solitaire, my missing bird. Her four eggs lay in a rough nest of weeds, grasses, yarrow-blades, and rootlets. This rested *upon*, rather

FIG. 35. The nest of the Solitaire "under the turfy over-hang", with bird sitting. 1906.

FIG. 36. The nest of the Solitaire on a tiny rock-shelf, "deep sheltered by the ferns and poison ivy", in the Bear Lodge Mountains. Crook County, Wyoming, May, 1901.

than *in*, a hollow, right in the runway continually used by many a vole, white-footed mouse, and chickaree, winding in and out, under the turfy over-hang. Here, storm-fended, the Solitaire was brooding her treasures. Silently, steadily, she eyed me. And then, amid the falling rain, there was wrought out that mystery of gentling whereby the wildest of the wild grow tame, at last, in home-defense; when danger no longer threatens.

My very first occupied Solitaire nest was found in this very canyon. It was the work of a previous year, in June. The fretful cackling of a Western Sharp-shinned Hawk had led the camerist through endless mazes of undergrowth, straight across to a steep slope whereon a few tall birches grew amid pines and aspens. In one of these birches, upon a revamped nest of the always terrible red squirrel there lay five eggs of the no-less-terrible wiry hawk. Hardly had the sight of these very rare eggs rewarded one's wearisome climb before there was heard, from the far-opposite rock wall, which I had just left, the furtive song of a Solitaire—never before heard in June. Straight across, then, to the nesting-niche I went. The site was in a sheltered nook upon a shelf, snug and inaccessible. It held four oddly-spotted young, already full-feathered on that late June day. Their cradle was just a mat of the long pine needles that were lying everywhere about. As usual the parents of these awkward younglings were curiously apathetic during my study of their brood.

Just such another nest I later found, at sunset of another late June day. It was on a tiny shelf, half way up the steep slope of a very narrow water course, not very far from the little old dilapidated church. This nest was betrayed, as occupied nests of this species almost invariably are, by the flushing of the sitting bird. In this nest, sheltered by poison ivy, there crouched four spotted young.

Rough as are all Solitaire nests, but unique in its deep foundation of stout pine twigs, was a nest, many years old, that I once found in the very bottom of a pine stump in a clearing. It had been built upward to a ten-inch height, and it had a matted lining of plant fibre.

Uncanny is the Solitaire, especially in baby-time. Sitters cling closely to their nests, whether with eggs or with young. And Solitaire parents worry precious little about human presences near their nests. There is no outcry. Even the warning call made by most parent birds when nearing their nests with food is, with this unconventional creature, only a faint utterance, and even this is sometimes not to be heard at all. Yet, curiously enough, with all that apparent indifference, I

FIG. 37. An old nest of the Solitaire is located in the bottom of the pine stump in the clearing.

FIG. 38. A Solitaire's nest "among broken layers of porphyry" in a deep cleft of the Bear Lodge rim-rock. Crook County, Wyoming, May, 1901.

have never known Solitaires to come near their nests, with food, when a man was just nosing about.

Beautiful as are normal eggs of the Townsend's Solitaire, I once found an entire "set" of them that were of rarest beauty. The pearly, somewhat rosy ground tint was heightened by the boldness and the brightness of the warm, red-brown markings. And there were five of them, which is rare, indeed.

A single pair of Solitaires that I once knew evinced a rare susceptibility. These birds were undoubtedly the very pair that reared their young in 1905 in the little niche among rocks near the crest of the Bear Lodge. The nesting place they had chosen for 1906 was but a hundred feet further up, on the same flood groove. On the abnormally late breeding date of July 10 I was intent upon the perplexing ways of a pair of Canada Jays. Behind and beneath a solitary pine sapling, at the head of the narrow gorge, I was hiding from the jays. Then, of a sudden, straight down the slope from which my jays had disappeared, a subdued Solitaire song was heard. It must have been a female's love-song, while she was resting and feeding near her nest. Quickly I sighted her, as she sat on the lowest dead branches of a little pine. I watched her mate come, wing-poised, across from the opposite side of the narrow and shallow gorge to a spot beside the female. The wings of the eager creature relaxed, and began to quiver. Her beak opened wide to receive the morsel her mate had brought her. Instantly, the almoner passed out of sight; but his mate still sat where she was, placidly preening.

By experience, the watcher knew exactly what was going to happen. He dared not move his very eyes. In an instant he shrank to half his size. With wings in poise the female Solitaire glides downward, aslant, to the bottom of the slope, a hundred feet away; and she has instantly disappeared. But, I found her, a bit later, on a juniper shrouded shelf, back among the broken layers of porphyry. A tenderfoot might have "rushed" her, instanter, but I just "froze", and watched! No miracle of words could possibly tell just how craft finally began to triumph over fear.

Two days went by. My camera was set up and left. Gradually, with infinite slowness, it was moved, nearer and nearer to the nesting spot; yet, always, in vain. At the critical moment, a drab shadow would be wafted from the nesting nook to some favored perching spot on the gaunt branch of a pine log; or to the lower twigs of a feeding tree. Then, while I crouched beneath my covert, burying my body among dead leaves and stems of bear-berry, the drab Lady would

come cautiously back, rod by rod, yard by yard, from one perch to another; until, at last one might almost foretell just what road she would take next, in going home. Then, more swiftly than the untrained eye might follow, she would have vanished out of space; and her bright eye would peer out at one from her half hidden eyrie. Finally, in near despair, I hid the camera just back of a blackened stump, behind a pine sapling. There I left it, for a while, "all set".

In due time the observer had crushed himself into shapelessness, among the rough herbage, but within reach of the holder-slide. And, there, scorched by a mounting sun, pinched by wandering ants, devoured by hungry deer-flies, he lay, a long, long time, waiting as only an enthusiast can wait! Cautionsly, when the climactic moment came, the slide was slowly drawn, inch by inch, with a hand upreached. The noisy shutter clicked its closing. And, the ghost of a shadow went flitting, quick as thought, out from the covert, into the sunlight, and far away, down the steeps.

TOPEKA, KANSAS.

BEACH-COMBERS

BY BAYARD H. CHRISTY

A gently curving bay opens northeastwardly to the breadth of Lake Superior. To the left against the horizon extends the blue band of Keweenaw Point; its mountains, often undercut by mirage, seem to float in air; to the right lake and sky meet in a far line that is serried and notched when the waters are tossed by storm. The bay swings inland between forest-crowned headlands of red sandstone. A long, low sand dune, extending from one promontory to the other, wind-built from behind, storm-beaten in front, falls abruptly to a narrow beach.

The crest of the dune is grown with harsh grass and beach peas; its landward slope is covered with red-berried kinnikinick; beyond extends a ridged, sandy plain, sparsely grown with jack pines and norways, carpeted with huckleberry bushes that now, in early October, are aflame amidst faded brakes and dim gray mosses. Wavelets lap the beach and raise a gentle murmur. When the wind is offshore even the murmur fails; but when lake winds blow a heavy surf mounts and roars landward. The breadth of the beach, from the precipitous face of the dune to the inconstant margin of water, is not great—two, three, six paces, at most. The waves beat upon a firm, steep slope, and in places reach the very base of the dune; but, for the greater part, there is a level interval between of loose, dry sand.

Peeled logs lie cast about, half buried; and each spent wave leaves an arc of small litter, to be caught and cast up again, endlessly. The water is cold and clean, the air fresh, and within the forest spreads the fragrance of the pines.

At the season of which I speak, during the early days of October, the lake side is alive with migrating birds. To what extent the hundred-and-fifty-mile-wide lake is an obstacle in the northward and southward movements, I do not certainly know. To the waterbirds, certainly, it is none. From the sand I pick up the frail body of a warbler, the life spent perhaps at the very completion of a long over-water flight; but repeatedly I have observed transients moving high in air, not in a north-and-south course across the lake, but east and west along its shore.

By whatever route they come, here along the dunes Tree Sparrows rise from the grasses; at the edge of the woods White-crowned and Harris's Sparrows are skulking. Gray-cheeked Thrushes appear in the shadows of the deeper forests; and the bands of Myrtle Warblers and Juncos are, I doubt not, augmented by newcomers from the north.

It is not, however, of the generality that I mean to speak, but only of a small part; only of those few birds that frequent the beach itself. This is the narrowest, the slenderest, the most diminutive of beaches—a strip of wave-dashed sand, three or four miles long, thirty or forty feet wide; slight in comparison with the beaches of the lower lakes, but adequate for my purpose. It serves to sift out from the moving hosts a few birds of riparian habit; not many kinds, not many individuals, but sufficient to constitute a group apart. There are among them birds of different and remote families, with nothing more in common than that they are birds and that they feed from the same table. I gain my specimens selectively, as the chemist gains his on a sheet of filter paper, and devote to them my further attention.

Setting out one morning under a gray sky, I find the lake tossed by a stiff, cold, northeast wind, and the waters tumbling and roaring on the strand. Far out to the north the sky is clear, and against it a skein of smoke is thrown from some steamer that passes below the horizon line. Herring Gulls come stringing along, two hundred feet in air, following exactly the line of the beach. Manifestly an aerial billow, as over a sunken reef, mounts above the rim of the forest, and along the crest of this billow the gulls find a highway. They course along it on scarcely moving wings. Occasionally one swings aside and glides to the surface of the bay. Very rarely one flies from the water to rest upon the shingle and sun himself. They

feed in the open water, rather, and not upon the beach itself. It is different with the Ring-billed Gulls, a species of which a few are present. Frequently I find one of them standing plover-like at the water's edge. They are deliberate in movement, and, as I suppose, happen occasionally upon some small fish cast ashore.

Advancing along the dune this wild, gray morning, I cross the trail of a deer that has lately come to water and gone again; a gang of ducks, flying high, comes down-wind from the open lake; an eagle rises from the woods and flaps out to sea. His flight is heavy and powerful. Occasionally he furls a wing, slips sidewise, and rises again, as though this breasting of the strong, cold wind were pleasurable. The eagles have an eye upon the beach, and upon the wide waters beyond, and anticipate even the gulls in finding fish when they rise gasping to the surface. Ravens, too, fly over the treetops; and it may be that they come sometimes to the strand; I do not, however, recall seeing one there.

Reaching at length the very bottom of the bay, I come upon the first of the true beach-combers, a Pipit. The lake tumbles and roars, the wind throws the spray afar; and amid the tumult the Pipit walks daintily, prettily; wagging its tail after its manner; not a feather ruffled; picking on this side and that as it goes. As I come near, the bird eyes me alertly, and presently darts up with its clear, sweet *pipit* cry, flying out over the water, leaping upward in its flight; but presently it swings back and pitches again only a short distance remote, and there recommences its busy progress, and I do not again disturb it.

Next day, the wind having spent itself, I find in the same place a company of three birds—two Pipits and with them a Lapland Longspur. The Pipits stand erect and walk daintily; the Longspur crouches and creeps. The Pipits manifest some timidity; the Longspur is quite confiding. Moving gently I find I can approach him so nearly that I have no need of field-glasses. Indeed, I am so near that the field-glasses may not be brought to focus upon him. The Pipits seem to feed preferably on the hard wet slope, along the lines of freshly cast-up drift; the Longspur creeps over the dry and softer sand near the base of the dune.

The birds now are in winter plumage. Nevertheless, upon the creamy olive-gray plumage of the Pipits—and upon one of them, particularly—spreads a faint glow, a certain impalpable suffusion, of cinnamon red. As for the Longspur, the black of the head is in eclipse, and shows somewhat uncertainly in a band across the upper breast and in emphatic spots at the margins of the ochre-colored cheek areas. The

large patch of sorrel brown over the nape of the neck is well defined. I note the long hind claw, almost as though I held the bird in my hand.

A rather unexpected element in this riparian gathering of birds is the Rusty Blackbird. He is a bird that more commonly is found gathered in small bands and moving about in alder-grown swampy places; but he frequents the shore too, and that regularly. In such place, however, I have invariably found him singly. He walks briskly, quite in the manner of the more familiar Bronzed Grackle. He follows the edge of the retreating wave, his bright, pale-amber eye alert, gleaning from the slight swath of drift. He is wary, and yet fearless; when disturbed he flies swiftly to a fresh stand a hundred yards down the beach; and when disturbed again he will raise his head, flick his tail, utter a low, harsh note, and fly to refuge in the woods.

It is in autumn that the significance of the name Rusty Blackbird is manifest. The jet black plumage is then, over the fore part of the body, veiled in golden brown; it is when the bird flies away that the black outspread wings and tail, together with the manner of flight, afford the familiar appearance of a blackbird.

The Black-bellied Plover is the only true shorebird on my list of beach-combers. Individual plovers linger here well into October. They are not timid birds, but they are very wary. Only from afar and through field-glasses can I detect them actually feeding. They cover the beach widely, from the water's edge to the face of the dune, feeding most commonly in the higher, drier portion.

As I approach, the bird comes to attention, and as I draw nearer still he runs fitfully before me. It is only by swifter approach that I can put him to flight, and then on broadly white and outspread wings and tail he swings away over the water and curves again to the strand, perhaps a quarter of a mile away. A silvery gray bird, with conspicuous black points of bill, eye, and folded primaries, and feet. The only question that rises is whether he may by chance be a Golden Plover, and the only sure field mark is the hind toe—its presence or its absence. And I challenge any one easily to detect that character. He stands, sunk a quarter of an inch deep in soft sand; you disturb him and, though he takes to firm moist footing, his legs go twinkling away, so fast that you get nothing. Only after slow and patient following and repeated fumblings of chance does your bird at last pause, broadside on, and afford that glimpse of the small elevated, almost wart-like enlargement on the slender shank that settles the matter at last.

On the morning of the seventh of October the Horned Larks appeared—a party of seven. They are sociable creatures, roaming and

feeding in companies. These are newcomers from the north, easily distinguishable by their lemon-yellow faces from the paler, southerly ranging birds of the interior. They run about over the drift; and, when disturbed, run hurriedly. They easily take wing, climb high, and sweep about with sweet, twittering calls, as though irresolute. But at length hesitation is gone, and they swing down to another feeding place.

There is but one bird more on my list—the Snow Bunting. I expected him. Each morning as I came out and searched the strand, he was in my mind; but it was not until the last morning of my stay—that of the thirteenth day of October—that the Snow Buntings appeared, two of them, crouching and feeding, very much after the manner of longspurs. But the birds are of very different coloring. The longspur is a black and brown bird, trimmed with white; the bunting is a white bird, trimmed with black and brown. He has come from Arctic islands, from granite hills pocketed with snow; and here along the lake shores he will continue through all the ice and storm of winter. But once have I seen him as far to southward as at my home in the Ohio Valley. His is the hardihood of the ptarmigan, and here he finds an adequate economy.

What provender, then, does nature afford these few birdlings on a wave-beaten strand? Thinking of this, I gathered between my fingertips and spread upon my palm a pinch of this small wrack. And of what did it consist? Of pine needles, bits of bark, the keys from maple trees, the small winged seeds of birch, alder, pine; and here the diaphanous shell of some minute shrimp-like creature. It is such matters as these that are the prizes of the beach-combers.

Presently the gathering will have dispersed. Indeed, when the buntings came, the plovers had already gone. And the plover will fly far—perhaps to another continent, and even to another hemisphere —before the urge within him will be spent. It was but by chance that, pausing here, he was found in association with half a dozen other particular kinds.

Are these trivial matters? Certainly they are. What matters then are significant? Let us adapt to our purpose the parable of the Saxon chronicle. We too are creatures busied on our arena along our reach of sand. On one side spread infinite waters across which we have come. Presently winter will be upon us, and we shall be going to some far and unseen place. Please God we go as confidently and as unerringly as the birds.

Sewickley, Pa.

STORKS IN TREES

BY MARGARET MORSE NICE

It was my privilege to spend a day in early June in the Unterspreewald with the ornithologist who has made a notable study of the bird life of these woods and meadows.[1] We had taken an early train from Berlin to the village of Lubölz, fifty miles southeast; here many of the houses and barns were old and quaint; the women wore black peasant costumes handsomely embroidered, and every one greeted us kindly.

Swallows (*Hirundo rustica*) were abundant in the village nesting in the barns, the jolly little Serin (*Serinus canarius serinus*) sang, and the Greenfinch (*Chloris chloris*) gave his absurd note. Soon we began to hear the lovely Sky-Larks (*Alauda arvensis*). Two years ago[2] I had been sorely disappointed in their song, but this time I rejoiced in it with my whole heart; it is altogether charming, brimming over with the delight of living. And then I heard my first Cuckoo (*Cuculus c. canorus*). The song is a medodious, peaceful, satisfying sound, and I do not wonder that it is loved.

The meadows were sweet with the scent of new-mown hay and fields were bright with pink ragged robin, while along the paths grew yellow irises and the bluest of forget-me-nots. I was delighted to hear the Chiffchaff (*Phylloscopus c. collybita*) again; he also improved on acquaintance. All day we kept hearing his simple, earnest lay and it always pleased me. I am very fond of the handsome and confiding Yellowhammers (*Emberiza citrinella*) whose song cannot be mistaken. The gorgeous Golden Orioles (*Oriolus o. oriolus*) were heard time and again; the spirited song has much in common with that of our Baltimore Oriole (*Icterus galbula*). White-throats (*Sylvia communis*) were busily singing; one of their songs reminded me very much of that of our Bell's Vireo (*Vireo belli*), but others are more musical and less easy to remember.

A notable feature of wooded areas in Germany consists in the numbers of Raptores that nest in them. We saw five or six Buzzards (*Buteo buteo*) during the day, a Red Kite (*Milvus m. milvus*), and three Black Kites (*Milvus m. migrans*), two of which were chasing the third and at the same time giving a curious trilling sound. We also observed a Hobby (*Falco subbuteo*) in flight and a Kestrel (*Falco tinnunculus*) in the woods.

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[1]Gottfried Schiermann, 1930. Studien uber Siedelungsdichte im Brutgebiet. Journal für Ornithologie, 78, pp. 137-180.

[2]1933. Some Ornithological Experiences in Europe. Bird-Banding, 4, pp. 147-154.

A new and exciting bird to me was the Hoopoe (*Upupa erops*) with its extraordinary crest. We found a mossy *Spielnest* of a Wren (*Troglodytes t. troglodytes*) and saw several fat babies that had been raised nearby. Herr Schiermann was always examining bushes with his walking stick and the count of nests thus discovered was as follows: a Turtle Dove's (*Streptopelia turtur*), a Garden Warbler's (*Sylvia borin*), a Hooded Crow's (*Corvus cornix*), and eight nests of the pretty, tame Red-backed Shrike (*Lanius collurio*) containing from one to six eggs, while one had also a Cuckoo's egg. There were also two empty nests of especial interest—that of a Screaming Eagle (*Aquila pomarina*) and the hollow tree where a Goosander (*Mergus m. merganser*) had raised her brood of young.

A flash of emerald—and a shining little Kingfisher (*Alcedo atthis ispida*) darted up the Spree. A pair of Curlews (*Numenius arquata*) pursued a Buzzard, a Yellow Wagtail (*Motacilla flava*) walked importantly along, and from a clump of weeds we heard the surprising medley of a Marsh Warbler (*Acrocephalus palustris*).

But the most exciting sight of the whole trip was the colony of White Storks (*Ciconia ciconia*) in a group of oaks. Although storks nest in trees quite commonly in many places in their range, almost always they do so in single pairs. Just why this typically solitary bird should become colonial in this place is a mystery. Several times during the day we had seen the handsome great birds walking unconcernedly about the meadows and we had passed two nests in trees in different places. But here there were fifteen nests in the tops of ancient oaks, two, three, and four in the same tree. A parent was on each nest and two to three white babies could be seen sitting stiffly erect. The nesting trees are surrounded by a wire fence and the colony is strictly protected. We sat down to watch and soon some storks came flying home. It was a wonderful sight to see the immense black and white birds sailing in the air. And most thrilling of all was the response of the mate on the nest—it threw its head way over on its back and gave the loudest kind of *Klappen* with its great beak. Herr Schiermann said, "You can imagine what it must be like when father, mother, and four babies 'clap' on your roof!"

Through the long twilight as we made our way back to the station we still heard the soft call of the Cuckoo and the happy singing of the Sky-Larks. It had been a wonderful day and we had a record of fifty-five birds.

Columbus, Ohio.

WINTERING WARBLERS IN CAMERON COUNTY, TEXAS, DURING THE SEASON OF 1934-1935

BY L. IRBY DAVIS

In my report on the wintering of the Black-throated Green Warbler (*Dendroica virens*) and the Wilson Warbler (*Wilsonia pusilla*) in Cameron County, Texas, during the season of 1933-1934 (WILSON BULLETIN, December, 1934), I indicated that I considered it likely a temporary condition with which we were dealing. This winter I have had cause to wonder if there is taking place a general and permanent northward extension of the winter range of warblers. It must be admitted, however, that we again had a mild winter and what is more important a large insect crop. The summer rains were not heavy this time but there was such an enormous crop of insects the previous year that we naturally got a lag effect. Caterpillars were even more numerous, in fact, than during the wet fall.

In order not to miss the incoming winter residents as I did in the fall of 1933, I went at least once a week to the southwestern corner of the county from the latter part of August until the last of December, 1934. This season the Black-throated Green Warblers and the Wilson Warblers which remained as permanent winter residents seemed to arrive the latter part of November. There were early waves of migrants but after a short stop they would go on. At any rate they would be plentiful one day and a week later I could find none at all. From the last week in November until April, 1935, there was no apparent change in the concentration of these two species.

This year the total number of Black-throated Green Warblers wintering in the county seemed to be about the same as last season but there was a further extension of their range to the north. They were observed during December, 1934, and January, 1935, along the Aroyo Colorado east of Harlingen and north along the banks of that stream as far as Willacy County. They were also found north of the Aroyo Colorado in suitable habitats near Harlingen and about the City Lake within the corporate limits of that city.

I was asked some questions by bird students who read my report on the birds here last year in regard to the chances of these birds being golden-cheeked Warblers (*Dendroica chrysoparia*). I might say that the birds wintering here have the typical auricular patch of *virens* and that the belly shows a distinct yellow wash.

This season the Wilson Warbler was found much farther to the east (as far as the eastward limit of the Black-throated Green Warbler the previous year) and slightly north of the Resaca del Rancho Viejo

in the western part of the county. As in the previous season they were at all times relatively scarce and seldom could more than two or three be encountered on an all-day field trip. Sometimes one could stay out all day without seeing a single one.

The rarest winter resident this year was the Yellow Warbler (*Dendroica aestiva*). As far as I know it has never before been known to winter in the United States. Two birds tentatively identified as of this species were seen near the City Lake in Harlingen during the last week of December, 1934. However, they could not be approached near enough for positive identification and it was not until January 20, 1935, that I was absolutely certain this species was also wintering here. On that date I was driving slowly past the courthouse in Brownsville when I heard a "pitting" in a tepaguaje tree on the lawn. I stopped quickly and got out of the car to investigate. As soon as I observed its bright yellow color I called to my wife and Mrs. Anita Miller, a visiting bird student from Cincinnati, to come and see it. Although the tree was rather small we were able to approach it without frightening the bird in the least. Hence we were able to study the bird from as close quarters as our binoculars would permit. It was a male in full plumage and the reddish-chestnut lines on the breast and sides showed up as plainly as though the specimen were in hand. Later in the month others were reported from the vicinity of Brownsville. My first record for the Yellow Warbler for the fall of 1934 was on August 12. By the 19th they had become quite plentiful, and on that date I observed large flocks of them devouring leaf worms on the cotton plants near Santa Maria. They were present in large numbers all during September, but rapidly thinned out the first week in October and one recorded on the 7th was the last seen until the very few winter specimens were located. I did not visit the Brownsville section during November or December; hence, can not report on their concentration there during the first part of the winter.

The Pine Warbler (*Dendroica pinus*) was present in still larger numbers this winter and was observed over all that part of the country which has a suitable growth of trees. This species was also found in Willacy County which is just north of Cameron.

Other warblers wintering here in about their usual concentration and of general distribution were (in order of their importance in number): Myrtle Warbler (*Dendroica coronata*), Western and Northern Yellow-throats (*Geothlypis trichas*), Orange-crowned Warbler (*Vermivora celata*), Black and White Warbler (*Mniotilta varia*), Sycamore Warbler (*Dendroica dominica*), Audubon Warbler (*Den-*

droica auduboni), Nashville Warbler (*Vermivora ruficapilla*), and the Tennessee Warbler (*Vermivora peregrina*).

It might be of interest to note that our summer resident warblers returned long before there was any indication that the winter residents were considering leaving. (The Myrtle Warbler is an exception to this statement as they were becoming noticeably scarce by the first of March and not one could be found on the 24th of that month. The Pine Warblers also left early and a few at a time). The Sennett Warbler (*Compsothlypis nigrilora*) was heard singing on all sides in the southwestern part of the county on March 6, but there was no attempt at song by any of the winter residents. The Orange-crowned Warbler was the first of the winter group to sing. They were first heard on March 29.

Instead of gradually thinning out as the Myrtle Warblers did the Black-throated Green Warblers left all at once as they did in the spring of 1934. The time of leaving was again the second week of April—not a one could be found on the 14th.

HARLINGEN, TEXAS.

AN EXAMPLE OF PARTIAL ALBINISM IN THE EASTERN CROW

BY DAYTON STONER

The unusual arrangement and extent of the white areas in the plumage of an Eastern Crow (*Corvus b. brachyrhynchos* Brehm) recently received by the Zoology Section of the New York State Museum prompts the present contribution.

On December 9, 1933, the writer received a telephone message from Mr. J. Hofman who lives in the west section of the city of Albany, New York, inquiring whether "partly white" crows were rare. He stated that he had such a bird in captivity and asked whether the Museum would be interested in obtaining it. On being assured that the specimen would make a welcome addition to our collection Mr. Hofman sent his son to get the bird but the boy found that the crow had died some time within the preceding twenty-four hours.

This crow was captured alive on November 26, 1933. From that date until the time of its death it had been kept in captivity during which period it fed and appeared to thrive. Upon examination of the specimen in the laboratory, it was found to be in a considerably emaciated state although its stomach was well filled. However, the condition of the plumage was very good and it exhibited few signs of wear or results of abrasion.

The measurements of the specimen, which upon sexing proved to be a male, were made in the flesh and are as follows: Length, 438 mm.; wing, 292 mm.; tail, 174 mm.; tarsus, 51 mm.; middle toe with claw, 46 mm.; exposed culmen, 42 mm.; depth of bill at nostrils, 19 mm.

It will be noted from the above that in two respects, length of tarsus and of exposed culmen, this individual is somewhat below the lowest range for *C. b. brachyrhynchos*. Both these measuremen's con-

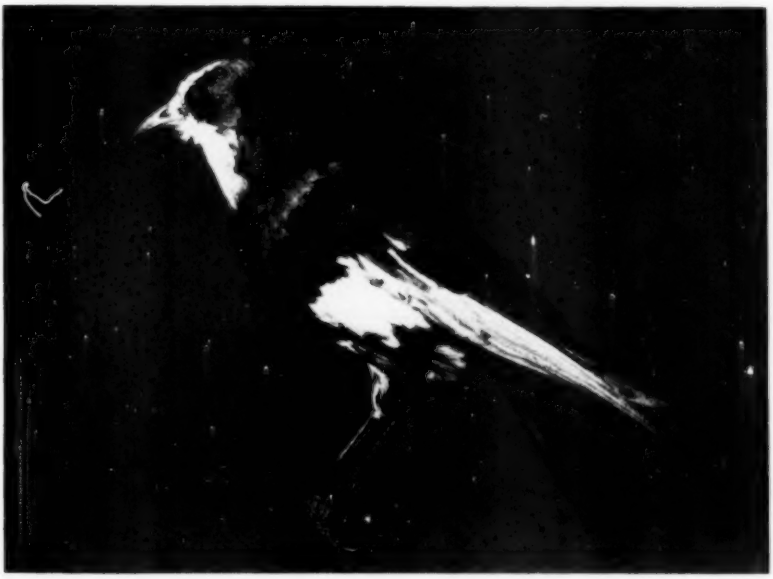

FIG. 39. Partial albino Crow taken in New York.

form closely with those for *C. ossifragus*; all other measurements are about average for *C. b. brachyrhynchos*. However, it often happens that animals which depart strongly from normal in the matter of coloration are somewhat under the average in size; the crow here discussed appears to partake of this characteristic and may be considered as a depauperate form.

The vagaries of arrangement of the black and white areas in the feather covering of this "pied" or "calico" crow may be summarized briefly as follows:

General: Back, nape, occiput, ocular region, tail and all principal contour feathers of the wings except the outer primaries and

secondaries more or less glossy black; lower throat, breast and upper belly together with left tibia also uniform black.

Head: Front to crown, white with a few scattered black feathers; antrorse feathers white except a small black "pencil" on the left side; right ear coverts white, the extreme tips and margins of a few of the feathers black; left ear coverts black; chin, throat, and upper neck white, a few of the feathers sparsely black; occiput and nape black. Irises brown.

Right wing: Primaries 2, 3, and 4 (from outside) and five outer primary coverts white. Remainder of wing feathers black.

Left wing: Seven outer primaries white except dusky tips. Eighth primary (from outside), with outer vane entirely black; inner vane partly black. Ninth primary mostly white, dusky near tip and near middle of outer vane. Tenth primary with outer vane mostly black; inner vane mostly white with black along rhachis. Outer secondary with outer vane grayish, inner vane white. Primary coverts mostly white; a few faint dusky streaks. Two of lesser wing coverts tipped with white; other lesser coverts black. Alula mostly white suffused with dusky. Remainder of wing feathers black.

Body: Left side of lower belly white, a few scattering white feathers forming a diagonal band extending to right leg. Remainder of body plumage black.

Right leg: Feathers of thigh mostly white as also the short feathers covering anterior and outer sides of tibia; feathers on interior and hinder margin of tibia black.

Left leg: Elongate feathers of thigh only tipped with white; remainder of leg feathers black.

Claws mostly white or whitish, the bases only black.

It will be observed that while this unique bird partakes of some of the size characteristics of both the Eastern Crow and the Fish Crow it also bears, in some degree, the plumage coloration of another near relative, the American Magpie (*Pica p. hudsonia* Sabine).

The partly albino crow here discussed has been mounted and is now on exhibit in the New York State Museum (Cat. No. 5255).

New York State Museum,
Albany, N. Y.

THE SEX RATIO IN DUCKS

BY O. C. FURNISS

There seems to be quite a diversity of opinion regarding the sex ratio in waterfowl. Mr. E. A. McIlhenny in the *Auk* for July, 1934, gives ratios that he found among winter birds on the Gulf Coast. He based his conclusions on large numbers of banded birds. Other correspondents have also pointed out that an excess of males over females exists. Never having read of any survey being made on the actual breeding waterfowl, it was thought that some information might be gained by a survey in this district. The area chosen consisted of twenty quarter-sections containing eighty-three sloughs and pot-holes from one-quarter to twelve acres in size. All the bodies of water were small enough to enable an observer to count the actual number of ducks on each, thus making conditions much more accurate and also easier.

Nineteen species of waterfowl were noted this spring (1935) of which fourteen remained to breed, either the nests being found or the broods seen later in the summer. The other five species were transients or too rare to be included.

Observations were carried on daily from April 29 until May 18. The hours spent in the field were from 4:30 A. M. until 7:00 A. M. and from 5:30 P. M. until dark; also most of the hours of daylight on Saturdays and Sundays. Ducks were not noted as going north in numbers; the so-called northern flight, at this point, seems to be largely a myth. The work was discontinued after May 18, as Mallards, Pintails, and Canvas-backs were definitely nesting in numbers, and the report would have shown an overwhelming excess of males over females.

The area was divided into twenty divisions each consisting of one-quarter section. A map of each was drawn and the sloughs numbered and listed. A time-table was followed so that each was visited once a week in turn. The ducks on every slough were listed specifically, sexually, and according to numbers. Some of the surface feeders flew up and there was the possibility that they settled in the slough next to be visited. When in the opinion of the observer such was the case, due allowance was made. However, this did not happen often as they usually flew to another area; also, out of a total of eighty-three sloughs it was very unlikely that they would fly to the next particular slough to be visited. Ducks on adjacent areas were not counted until the time came to study that area. The following information was derived in this manner from April 29 until May 18.

Species	Total in Three Counts	Males	Females	Ratio Males to Females
Mallard	137	86	51	1.7—1
Gadwall	5	3	2	1.5—1
Widgeon	36	21	15	1.4—1
Green-winged Teal	29	16	13	1.2—1
Blue-winged Teal*	64	38	26	1.5—1
Shoveller*	10	5	5	1.0—1
Pintail	35	26	9	2.9—1
Redhead	20	11	9	1.2—1
Canvasback	91	55	36	1.5—1
Lesser Scaup	424	259	165	1.6—1
Ring-necked Duck	24	12	12	1.0—1
American Golden-eye	21	11	10	1.1—1
Bufflehead	15	10	5	2.0—1
Ruddy Duck*	31	24	7	3.4—1
Totals	952	577	365	
Average totals	317.33	192.33	121.66	1.6—1

The ratios were derived from lesser numbers of birds than those used by other observers but they were taken from the actual breeding birds in their breeding territories.

PRINCE ALBERT, SASKATCHEWAN.

A STUDY OF THE WINTER BIRD LIFE IN BEAR LAKE AND UTAH LAKE VALLEYS†

BY C. LYNN HAYWARD

INTRODUCTION

During a number of years past I have had the privilege of making collections and observations of the bird life in certain parts of Utah and Idaho. These studies have been carried on in Bear Lake Valley which lies partly in the extreme southeastern corner of Idaho and partly in Utah, and in Utah Valley in central Utah. It is a striking coincident that these two valleys lying some 200 miles apart contain within their borders two of the largest and most interesting fresh water lakes in the Intermountain West, and possess many general topographical features in common; yet a difference in elevation of about 1,500 feet with its accompanying climatic variations has a significant effect upon the winter bird population in the two areas.

While no attempt is to be made in this paper to present a complete list of the winter birds of these two valleys, an effort will be

*Blue-winged Teals, Shovellers, and Ruddy Ducks increased towards the end of the survey so that there were actually more present in the district than the above tab'e shows. However, in the case of the Shovellers by far the larger numbers were always in pairs so that the one-one relation is fairly close.

†Contribution No. 53 from the Department of Zoology and Entomology, Brigham Young University, Provo, Utah, June, 1933.

made to point out the predominating bird life as well as to indicate the contrasting climatic and environmental conditions which seem to govern the bird populations.

The collections and observations on which this study is based were made chiefly during the months of November, December, January, February, and the early part of March. It includes, roughly, the period between the end of the autumn and the beginning of the spring migrations. The Bear Lake Valley observations were made from 1928 to 1930 and the Utah Valley observations from 1931 to 1933.

I wish to acknowledge with thanks the assistance of Dr. H. C. Oberholser and Mr. Clarence Cottam of the U. S. Biological Survey in the identification of a number of doubtful specimens. I also appreciate the many helpful suggestions of Dr. Vasco M. Tanner, Brigham Young University, in the preparation of the manuscript. Numerous students and friends have supplied me with helpful information, but I wish especially to mention the assistance of Mr. D. Elmer Johnson who accompanied me on many field trips and aided in the preparation of skins and data.

Topographic and Climatic Features

Bear Lake Valley is located chiefly in Bear Lake County in the extreme southeastern corner of the state of Idaho. About fifteen miles of its southernmost end extends into Rich County, Utah. It is long and narrow in outline, having a maximum width of about eight miles and a total length of approximately fifty miles. In the extreme southern end of the valley, Bear Lake, a beautiful, deep, freshwater body is located; and northward there extend many acres of swamps and plains traversed by numerous wandering streams. Along the western border of the valley, low, sage covered foothills rise rather gently toward the crest of the Bear River Range of mountains which presents a somewhat even skyline and has an elevation of 8,000 to 9,000 feet. The eastern border of the valley is formed by the steep scarp of the Bear Lake Fault, and the elevated Bear Lake Plateau extends eastward for many miles into Wyoming. The valley floor is occupied largely by farming land where it is not covered by lake or swamp. It has an elevation of about 6,000 feet.

Due to the high elevation, the winters of Bear Lake Valley are rather long and severe. A summary of the climatic conditions as to mean temperature, snowfall, and periods of freezing temperatures, as shown by the records of the United States Weather Bureau are given below in Table I. As a result of these conditions, snow often lies in the valley for four or five months often to a depth of two or

three feet, covering almost every vestige of ground food, and long periods of severe sub-zero temperatures make living conditions most difficult.

On account of its great depth, Bear Lake does not usually completely freeze over until February, but it remains frozen often until the middle of April. During at least three or four of the winter months practically all of the ponds, swamps, and streams are completely frozen over or break up only for very short periods.

Utah valley is situated slightly north of the central part of Utah state in Utah County. In general topographic features it is very similar to Bear Lake Valley just described except that it is somewhat larger. Utah Lake has a greater area than Bear Lake but is a much more shallow body and is, therefore, frozen over during the greater part of the winter. The valley is bounded on the east by the high Wasatch Mountains and on the west by lower hills and mountains. The valley floor has an elevation of about 4,500 feet. Due chiefly to the lower elevation this valley has somewhat milder winters as will be seen in the accompanying charts. Snow is ordinarily not more than a foot deep at any time, and then usually for a month or two only.

While temperature often drops below the zero mark, these cold periods are ordinarily broken regularly by warmer days which melt the snow from sunny exposures and make considerable quantities of ground food available to birds. A considerable number of streams remain open throughout the winter affording feeding grounds for several varieties of ducks.

TABLE I. Summary of Some General Climatic Conditions in Bear Lake and Utah Valleys.

Record of Annual Snowfall from U. S. Weather Reports.

Place	No. Yrs.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Provo, Utah Valley	18	14.7	10.2	10.9	2.7	0.1	0	0	0	0	0.4	3.6	11.4
Paris, Bear L. Val.	15	16.3	12.6	11.7	2.9	1.6	0	0	0	1.1	4.5	7.3	9.4

Record of Mean Temperature, Degrees Fahrenheit.

Place	No. Yrs.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Provo, Utah Valley	20	27.0	31.4	40.6	49.3	56.5	64.5	72	70	60.5	49	39.3	28.5
Paris, Bear L. Val.	15	19	19	27.4	39.6	49.2	55.8	63.5	63	55	44	33	21

Record of Early and Late Frosts.

Place	No. Yrs.	Av. Date Last Killing Frost	Av. Date First Killing Frost
Provo, Utah Valley	20	May 24	September 24
Paris, Bear Lake Valley	15	June 14	September 3

The above charts demonstrate a number of interesting things as to the climatic conditions of the two valleys, some of which have al-

ready been pointed out. It will be noted in addition that the period in which frosts are expected in Bear Lake Valley is approximately forty-two days longer than in Utah Valley and that the snowfall is correspondingly greater and the temperature lower.

Contrasting Bird Populations

The greatest contrast in bird populations in the two areas is shown, as would be expected, in the ground or near-ground feeding forms, particularly the Fringillidae and Icteridae. The contrast, however, is in number of individuals rather than in number of species since the same species in most cases may be found in Bear Lake Valley that inhabit Utah Valley but in far less numbers. The heavy snowfall of Bear Lake Valley is undoubtedly the indirect cause of this situation since a large part of the available ground food is covered for a considerable length of time.

In Utah the more common ground or near-ground feeding birds include as perhaps the most abundant the various varieties of Juncos. Shufeldt's Junco (*Junco oreganus shufeldti*) is by far the most common form. The Gray-headed Junco (*Junco caniceps*), the common breeding species of the Wasatch Mountains, is probably next in abundance; while the Pink-sided Junco (*Junco mearnsi*), which nests in the Bear River Mountains to the north, is fairly common. The Slate-colored Junco (*Junco hyemalis hyemalis*) was taken in Bear Lake Valley in March, and I have a specimen taken in Provo on November 12, 1932. Although not common, the Montana Junco (*Junco oreganus montanus*) is to be found consistently in winter in both Bear Lake and Utah Valleys.

These various species of juncos occur on the foothills and lower in Utah Valley throughout the entire winter. In Bear Lake Valley, however, I have never seen them in December or January although all of them occur in late fall and early spring.

Undoubtedly the most common finch in Utah Valley in winter is the Northern Pine Siskin (*Spinus pinus pinus*). These birds are to be found in flocks of many hundreds on the foothills where they feed upon sunflower seeds that may project above the snow. In company with them are smaller numbers of the Pale Goldfinch (*Spinus tristis pallidus*). Both of these species are rarely seen in Bear Lake Valley in mid-winter but they are replaced in numbers in that region by great flocks of Western Tree Sparrows (*Spizella arborea ochracea*). This latter species, however, seems to wander considerably and is not likely to be found in the same locality for very many days in succession.

Other common ground feeders that are found abundantly in Utah Valley but rarely in Bear Lake Valley in mid-winter are the White-crowned Sparrow (*Zonotrichia leucophrys leucophrys*), Gambel's Sparrow (*Zonotrichia leucophrys gambeli*), the Mountain Song Sparrow (*Melospiza melodia fallax*), the Spurred Towhee (*Pipilo maculatus montanus*), the Common House Finch (*Carpodacus mexicanus frontalis*), the American Pipit (*Anthus spinoletta rubescens*), the Long-crested Jay (*Cyanocitta stelleri diademata*), Woodhouse's Jay (*Aphelocoma californicus woodhousei*), and the Thick-billed Redwing (*Agelaius phoeniceus fortis*). Most of these species while occurring in Bear Lake Valley in November and again in February are not likely to be found there in large numbers during January and December.

Birds that obtain their food from the fruits, seeds, buds, or blossoms of trees are about equally abundant in both valleys throughout all of the winter months. Very large flocks of Western Evening Grosbeaks (*Hesperiphona vespertina brooksi*) are found in both valleys throughout the entire winter period. They seem to be particularly fond of the fruit of the boxelder and the white ash. These birds often remain until the latter part of May, feeding upon the buds and blossoms of elms and other trees during the spring months.

An interesting winter bird of Bear Lake Valley is the Common Redpoll (*Acanthis linaria linaria*), but I have never as yet seen this bird in Utah Valley. I have often noted these birds in large flocks in February and early March feeding on the blossoms of the Fountain Birch which grows so profusely along the streams in Bear Lake Valley. Under similar circumstances considerable numbers of Rocky Mountain Pine Grosbeaks (*Pinicola enucleator montana*) are often encountered feeding upon the blossoms of the alder. This latter species seldom visits Utah Valley in winter but prefers to remain much higher in the mountains.

Both the Eastern Ruby-crowned Kinglet (*Corthylio calendula calendula*) and the Western Golden-crowned Kinglet (*Regulus satrapa olivaceous*) are fairly common in Utah Valley in winter, but I have never seen either of them in Bear Lake Valley during the winter months. The Golden-crown may scarcely be called a valley bird since it confines itself largely to the mountains and higher portions of the canyons even in winter. On March 11, 1933, a party of students and

I encountered a large flock of these in the Canadian zone in Rock Canyon near Provo. On the eighteenth of the same month we saw a similar flock on the mountain east of Provo. Specimens were obtained on both days. On April 22, 1933, I was surprised to collect another specimen of this kinglet in the Juniper Belt on some low hills west of Utah Lake.

Considerable numbers of Western Robins are to be found in both valleys throughout the winter months. These birds more frequently occur in the mouths of canyons where dried berries of various kinds are available. A few Townsend's Solitaires (*Myadestes townsendi*) are to be found consistently on the outskirts of towns every year. During the winter of 1933 we were surprised to see a number of Mountain Bluebirds (*Sialia currocoides*) about the campus of the Brigham Young University at Provo in the early part of January. They remained in the vicinity until spring in spite of the fact that it was one of the coldest and longest winters of a number of years.

Other smaller winter birds of both Utah and Bear Lake Valleys are the Rocky Mountain Hairy Woodpecker (*Dryobates villosus monticola*), Batchelder's Woodpecker (*Dryobates pubescens leucurus*), the Rocky Mountain Creeper (*Certhia familiaris montana*), and many others less common which space will not permit me to mention at this time.

In suitable localities where the water is open throughout the winter, considerable numbers of ducks remain. The most common of these are the Common Mallard (*Anas platyrhynchos platyrhynchos*), Baldpate (*Mareca aremicana*), American Pintail (*Dafila acuta tzitzihoa*), Green-winged Teal (*Nettion carolinense*), Cinnamon Teal (*Querquedula cyanoptera*), American Golden-eye (*Glaucionetta clangula americana*), and Buffle-head (*Charitonetta albeola*). In Utah Valley most of these ducks concentrate on two or three warm streams that remain open throughout the winter. In Bear Lake Valley only one small stream known as Spring Creek remains unfrozen, and consequently very few ducks are to be found in that region in mid-winter.

Of the shore birds only Wilson's Snipe (*Capella delicata*) and the Killdeer (*Oxyechus vociferus vociferus*) remain with us during the entire winter. These birds are to be found frequently along small, open streams in both Bear Lake and Utah Lake Valleys.

Members of the hawk family are fairly common in both areas in winter, although in recent years shooting campaigns against them

have greatly reduced their numbers. With the exception of the migratory forms, the winter species are about the same as those of summer except that the Eastern Goshawk (*Astur atricapillus atricapillus*) often wanders into this territory. The Western Goshawk (*Astur atricapillus striatulus*) is fairly common in winter, and Mr. R. G. Bee informs me that this species remains here during the summer, nesting in the vicinity of Provo.

The more interesting winter representatives of the family Strigidae include the Montana Horned Owl (*Bubo virginianus occidentalis*), the Snowy Owl (*Nyctea nyctea*) and the Saw-whet Owl (*Cryptoglaux acadica acadica*). A specimen of the Montana Horned Owl was taken by Mr. Clarence Cottam at Aspen Grove near Provo, April 4, 1928, and I obtained two specimens at Paris, Idaho, in February, 1930, which I believe to be this species. A single specimen of the Snowy Owl was taken on Provo Bench in December, 1908, and is now in the collection of the Brigham Young University. On February 20, 1929, one of my students brought me a Saw-whet Owl that was taken at Paris, Idaho, and a few days later I saw another bird near my home at that place. A number of other more common species of owls are to be found in this area in winter as well as in the summer.

Conclusions

Many problems of an ecological nature present themselves in connection with the winter bird life of these inter-mountain valleys of the West. More details as to the exact food of our winter birds would be of interest and value. While much data of interest and value has been accumulated during the past number of years, much is yet to be done before we can have a really accurate knowledge of the winter bird inhabitants of these interesting areas.

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THE CARDINAL NOW TWELVE YEARS OLD

BY ALBERT F. GANIER

In the WILSON BULLETIN for December, 1933, and again in December, 1934, the writer gave the history of a male Cardinal, banded February 12, 1934. At the present writing (November 15, 1935) this individual is still living and is at least twelve years old. The bird was originally trapped at the writer's home and has been a permanent resident about the place. Each morning he comes for his breakfast of sunflower seed and grain which is placed on a feeding shelf near my dining room window. When not found waiting in a nearby tree, he will usually come in response to a whistled call. The mate of this bird, which had been his constant companion for at least three years, was killed on her nest, by a cat, on April 6. They had built this first nest, as usual, in the same crotch of the same shrub that has been used for years as a nest site for the first nest. It was begun on March 17, and proceeded leisurely. The female was killed at dusk on the first day she had begun to incubate her three eggs. On the following night I trapped and killed the cat.

An unmated young female, which had been about the place all spring, immediately became the consort of the old male and on April 15 they began a nest in a low shrub. The female began to sit on April 30, on three eggs. On the following morning, the nest was found tilted and one egg was missing but she had resumed incubation. On the next morning the nest was found turned over and the other eggs were missing. The third nesting attempt for the season was in the top of a high privet bush near my bedroom window and here, incubation of the three eggs began on May 30. These young successfully left the nest on the morning of June 19. At dusk they were located high up in a big hackberry three but the following morning one of them was missing. On the second morning, another had been taken during the night. The surviving youngster was carefully tended by its parents but disappeared after a few weeks. I attribute these losses to a pair of Screech Owls which paid nightly visits to my premises. A fourth and last nest was built by the pair, ten feet up in the upper branches of a privet near my neighbor's house. The two eggs hatched and on August 9, the young looked nearly ready to leave the nest. The following morning the nest was found tipped over and both young were missing. Since the parent birds were not feeding them it was evident that they had been captured, presumably by the owls. The female had escaped with her life but the skin of her breast had been torn by a claw which resulted in her being marked permanently

by a tuft of feathers protruding from her breast. The season's efforts resulted in a net loss and demonstrated how difficult it is for this species to perpetuate its kind when confronted with the enemies mentioned.

As was the case with his former mate, the new one is constantly with him and he brooks no rivals for his favor. During the early winter the birds roost in a tall green privet hedge along the side of the yard. Last January, after the privet leaves had fallen, the pair resorted to the inside of my neighbor's double garage to roost, he kindly leaving a door open for them. Aside from looking rather bedraggled at molting time, there is but little in his appearance or manner to betray his unusual age.

NASHVILLE, TENN.

ARIZONA FIELDS ARE VIRGIN FOR BIRD BANDERS

BY FRED M. DILLE

From an ornithological viewpoint, there is probably no portion of the United States more intriguing than the "Southwest", and particularly Arizona. Especially to those that have punctuated their studies of birds with collections. I have been afflicted with an Arizona urge for years, and though I have been footloose for some time and could have gone, it was but last winter (1933-1934) that I got out of the old rut and made the break. A good sized blizzard in the Dakotas just prior to the date chosen for our departure, caused us to leave our car at home and start the journey by train. Therefore in due course of time, the early morning of the last day of the year 1933, found Mrs. Dille and myself rubbing the grime from the windows of the Pullman with our noses, in our efforts to obtain a first-view impression of Arizona.

As our train gradually dropped to lower levels and the sonoran regions, I saw my first sahuaro (Cactus) and mistook it for an abandoned fence post. But finally with too many fence posts to account for, I realized what they were. Recalling many oölogical yarns of collectors and climbing such hazards for eggs of the elf owl, I pointed out a good healthy specimen of sahuaro to the car porter and told him I would like to have a photograph of him climbing one of those cactuses. He took a good look at them and replied, "Boss, I do not believe I could do it." Later in the winter I had occasion to look up Mr. D. D. Stone, whom I found on a homestead near the historic town of Casa Grande. He is an old-time oölogical acquaintance of forty

years vintage from New York State. I discussed with him the practicability of climbing a sahuaro and he said it had been done by first burning off the spines with kerosene torches.

Now! I would not impose this article upon BULLETIN space, unless I thought there might be bird notes of value to some reader taking the status of a prospective visitor. And let me suggest to any northern reader, who has never been to Arizona of a winter season, to, by all means, arrange for such a visit. Winter in Arizona is by name only—by courtesy of the calendar, so to speak. I must emphasize the delights in the climate, the evenness of the days, the reliability of good weather, and the new and rare bird life that you will come in contact with.

If you choose Phoenix, as we did, you will make no mistake. Although it is a large city with an extensive suburban population you will have easy access to the desert. And by going from ten to forty miles out in some directions, you will find bird life of three zones. As a location for stopping, choose to the northwest or northeast of the city center, and your routings through the street traffic will be easier. But do not make the error we did in leaving your car back home.

For a bird student from Iowa, Minnesota, or eastward there will be made pleasing discoveries than for one from locations north of Arizona, on account of direct autumn migrations. I did not realize until out in the field, that, like ourselves, there would be birds from the north spending the winter here also. And therefore I did not tally up on so many that were new in my experience. But the few that were new were sufficient to make the winter long remembered. The Cactus Wrens, the Verdins, the Gila Woodpeckers, and the wealth of Thrashers! And of former summer bird friends, on this, their winter playground, such surprises in the brightness of their winter plumage and the young in all stages of seasonal changes! To see flocks of Mountain Bluebirds in one field, flirting with a flock of Western or Chestnut-backed cousins in the adjacent area is one thrill. You will find birds in winter migration from western Utah, eastern Oregon, mixed with birds from southern California and from the higher elevations of the Rockies of Colorado. All these are pleasures necessary for you to experience to round out your field knowledge of your northern summer birds.

It is regrettable to Arizona, that the foundational bird records have been published by outsiders on visits to the State, notably by ornithologists from California. As a basis with which to work, one

has to have a copy of Swarth's Distributional List of the Birds of Arizona.* To continue on such a substantial basis, there is an immense field for research work open to anyone who will make residence in Arizona and keep systematic records.

The migration detail alone, is tremendous and mystifying in trend. This study is complicated by first the northern birds that come to the lower sonoran zones of Arizona for their winter sojourn and the large group that do not leave Arizona the year around, but can move from the lower levels to high elevations within the State's borders. Also confusing are the winter visitors from the north, that act like the human tourist, here today in numbers and forty miles away tomorrow. Bird banding holds high possibilities and any systematic study of the routes in migration within the State will require much pioneer bird banding.

Now, as I have intimated, my traditional information about the birds peculiar to Arizona has been founded upon printed narrative and records, and I have had fixed ideas about their habits and habitats. But there has been a tremendous change in the character of the region about Phoenix, and much of my bird knowledge had to be readjusted. I refer to the development following the completion of the Hugh Government Irrigation System. The region about Phoenix for twenty miles in all directions is now under intensive cultivation with resultant citrus groves over twenty years in age.

The city of Phoenix itself harbors many birds. The residential section is extensive. Homes are on ample lot plan and shrubbery is semi-tropical and varied. Cactus Wrens, Abert's Towhees, Inca Doves, Palmer's Thrashers, and Gila Woodpeckers are as common throughout the city as out in the country. And hummers are legion. I had not encountered the House Finch since leaving Denver, and that was a pleasing contact. It brought to memory our old club meeting in Denver, and the much discussed topic of why and how the House Finch, without being a quarrelsome bird, could stay and thrive in close contact with English Sparrows. There is also an ample English Sparrow population in Phoenix.

One of the tragic angles to Arizona ornithology is the large amount of specimen material that has been taken out of the State, with no records or data resulting to the benefit of the State. The details of some of this collecting are deplorable and there will be a reaction to the detriment of coming students. Public sentiment has

*A Distributional List of the Birds of Arizona. By Harry S. Swarth. Pacific Coast Avifauna No. 10, Published by the Cooper Ornithological Club.

already reacted against depredations of the desert plant life, and a movement is under way to prohibit export of archaeological treasures. Bird life will be next in order.

The following notes I offer to emphasize my experience, and to take occasion to mention lines for Arizona research as I could see them; and also to add to the data available in the Swarth distributional list referred to.

Inca Dove. *Scardafella inca inca.* I was in the field by January 18, 1934, and these doves were east of Phoenix in large flocks. About the border areas between the orange groves and the unclaimed desert. They had either just arrived from somewhere, or were flocking to be on their way elsewhere. This flocking broke up in a few days and they took on an even distribution throughout the city and the suburban citrus acreage for a continued stay and the nesting season. There are no citrus groves west of town and there were practically no Inca Doves in that direction. Of the allied species of doves about Phoenix, in season, the Mexican Ground Dove did not put in an appearance until the first of April and then in scarce numbers. The first record obtained for a White-winged Dove was of March 21, but I was informed that that date was early.

Gila Woodpecker. *Centurus uropygialis uropygialis.* A truly typical woodpecker for the Phoenix region and a species that claims your admiration. They do considerable daily routine ranging, are very busy, mind their own business, and are as common as any flicker or woodpecker that you are familiar with. Home owners complain of a bird that with its long bill, punctures the grape fruit and orange. Some claim it is the work of this bird. Others blame the Cactus Wren or the Thrasher. My idea on the matter was that the Cactus Wren was the guilty party. But I would wish more research on this before being sure. I do not know sufficient chemistry to diagnose fruit juice in a bird's stomach. The damage is slight, however. A few grape fruit in an orchard is no loss. But you know how a farmer will react.

Black Phoebe. *Sayornis nigricans nigricans.* With the coming of the canals and the water, this bird is common but stays close to the water. It is found nesting and uses every suitable site such as flumes, bridges, head-gates.

Northern Cactus Wren. *Heleodytes brunneicapillus couesi.* With my first specimen of Cactus Wren in hand, I was puzzled. I thought it was a Thrush. Dr. Coues, in his Key to North American

Birds, emphasizes this thrush similarity. The field notes which came from Dr. Coues always convey that original field touch which helps.

But this bird has deserted the desert and cholla cactus nesting sites for the proximity of the house and the citrus groves. One nest I saw was built in a mass of climbing vine on the trellis of a front porch (house occupied). And another in an empty tool box on a work bench in an open garage. The habit of building several extra dummy nests has not been given up. This bird is not quarrelsome, but sly and persistent in any plan. The bird is more welcome by the natives than the mockingbird.

BENDIRE'S THRASHER. *Toxostoma bendirei.*

PALMER'S THRASHER. *Toxostoma curvirostre palmeri.* The latter, *palmeri*, is an abundant nesting resident about the homes and orchard acreage. Every suburban home has a pair or more. The bird is commonly referred to as the "Bendire Thrasher", the name having been spread as popular information by some bird student. It resulted from my investigation that it was *palmeri*, so frequent about the orchards but one has to go out to more typical desert to find *bendirei*. I think the general distribution in this region is approximately three *bendirei* to four *palmeri*. There is a close similarity in the two birds. Dr. Coues in the "Key" comments on this very neatly. He states that if one has but a specimen or two it is hard to differentiate. But if one has a half dozen of each, they can readily be sorted into the two groups. I did not want to accumulate anything like a series of these two thrashers because I did not feel justified. But one day, I had the good fortune to obtain two thrashers that looked very much alike in plumage, and yet there was a striking contrast in weight and size, chiefly weight. Both were old birds and the location was desert. I used these two birds as my types for later sortings. The thrashers are nicknamed "pretty quick", which is the way the usual call note sounds to the native. Oölogy is good evidence sometimes to substantiate classification in ornithology. These two birds closely resemble each other in casual comparisons, but the eggs respectively are very different.

CEDAR WAXWING. *Bombycilla cedrorum.* As for my observation it remains as Swarth states, "Of rare and irregular occurrence." There were four birds that stayed with Mr. Yetter in his orange grove eight miles northeast of Phoenix, from January to April. The attraction appeared to be a large mulberry tree in full fruit. And I saw my first intoxicated bird from too much mulberry juice. I only took one of them for a specimen and for a record. I showed the bird to two per-

sons in the Valley who know birds and they stated they had never seen the waxwing before.

WHITE-RUMPED SHRIKE. *Lanius ludovicianus excubitorides.* My designation as above, will do for the present and until the revision of the group, now in progress, has been accepted. I dislike to bring any misfortune down on this shrike by divulging inside information to the plumage splitters, but there were hundreds along all the farming lanes west of Phoenix. They had not moved out by the middle of April. What was holding them was the great flocks of White-crowned Sparrows along the roadside thickets which they could not resist harassing. I suspect that this shrike wave came from the west and southern California.

ORANGE-CROWNED WARBLER. *Vermivora celata celata.* I have a few specimens that I obtained fourteen miles west of Phoenix in a wet back water growth of willows adjacent to Salt River. There were considerable numbers of them in the brush and they were there from March 1 until April 15, of my recording.

AUDUBON'S WARBLER. *Dendroica auduboni auduboni.* When Mr. Swarth states this warbler as abundant in winter in the lower sonoran valleys of southwestern Arizona, he gives their status exactly. The orange groves and suburban tracts about Phoenix are their favorite refuge, but also west of town fourteen miles and east for forty miles. Recall in connection with these notes, that as you go east from Phoenix, you gain elevation; but you get more in line with what I have figured out to be the chief migration route from the south of that region. They are not a flock bird and did not begin to bunch until approximately April 10. I take it that the bunching of the winter birds in Arizona closely precedes the beginning of the movement for the north. But in the north, the bunching in August or September is but a prelude to an erratic regional movement, instead of the beginning of the journey south. I am referring to most all smaller birds, not Audubon's Warblems alone. This would be an interesting question to solve in Arizona.

The only difference between this warbler and *coronata* is the yellow throat patch of *auduboni.* These warblers are more difficult to approach than sparrows, and I was bothered by making errors in shooting. What few specimens I did take were in various stages of plumage and my material indicates that the throat patch is the last one to come. I do not believe that the inclusion of *Dendroica coronata* in the Arizona list is justified excepting by actual specimens with a May or June label at the earliest.

Arizona Cardinal. *Richmondena cardinalis superba.* You will be shocked to learn that this handsome bird should work out in an offensive manner. My first specimen had so foul an odor I had to investigate the food contents, and it was horse manure. This will explain the presence of pairs about whatever cow yard or stable (or worse) the various farm sites offer. They go in pairs, often more than one pair in company. They are shy and a little difficult to approach, at least in the winter season. This shyness of some birds seems to vary with the season. Up in the foothills, sixty miles east of Phoenix I found two pairs sticking close about the garbage heap of a C. C. C. camp.

Abert's Towhee. *Pipilo aberti.* The comment by Mrs. Bailey in her handbook, "Birds of Western United States", is typical of the cases of needed readjustment from that traditional knowledge I have been telling you about. This bird, like the Cactus Wren and Palmer's Thrasher, has abandoned the desert spaces for adjacent farming regions, citrus grove homes, and the city of Phoenix. It is not "extremely shy" but one might say it is "coy". In the city if there was an empty house, they were coming and going under the sheds of porches. And about the farms their runways were close to the stables or out-buildings that had space under the floors. "Runways" is a term used in speaking of small mammals but if the quail have runways, so does the towhee and *aberti* more so than any towhee I have ever made contact with.

Lark Bunting. *Calamospiza melanocorys.* No bird has yet fooled me so completely as did the winter flocks of this old friend of my Colorado and Nebraska experience. If there is one bird on its northern nesting ground that I have known longer than any other it is the Lark Bunting. But what were these birds in this nervous, closely packed, quickly startled moving flock, acting just like a flock of wild scaled quail? There were no males of full colors in the bunch, which did not help my recognition. But my experience was exactly in corroboration of the comments by Mrs. Bailey in her Handbook. How they must tame down during their tedious journey northward, for when they arrive with us in Colorado and take location, they are very sociable, and full of song. There was a slight increase of black in the plumage with the first of April. They had not left the Phoenix region by the tenth of April, but the black colors were coming fast, on the males. We get first arrivals in northern Colorado usually by May 10.

CLAY-COLORED SPARROW. *Spizella pallida.* In the general vicinity of a locality in the dry bed of the Agua Fria River fourteen miles west of Phoenix, I took three of these sparrows at three different dates in February. The birds were in company, singly with dominating numbers of the White-crowned Sparrow. If one would work over these bunches of "white-crowns" with a glass and a gun, the sparrow tally for Arizona could be increased materially.

BREWER'S SPARROW. *Spizella breweri breweri.* During February-March there were but a few single birds mixed with flocks of "white-crowns". But by April 11 large numbers appeared in migration wave from the south, and this movement kept up for a week. This route was definitely from the south, down the valley of the San Pedro River, around the large Superstition Mountain, west side, and into a valley at the junction of the Verde and Salt Rivers. What brief study I could give Arizona migration routes was applied as above outlined, as I had it selected for close observation. My first specimens of this sparrow in Meade County, South Dakota, have been May 12. The large canal full of water with the heavy desert thicket on the bank was too good a refuge for a few days stay to be overlooked, and the sparrows hung up here in large numbers before gradually working up the Verde River Valley.

WHITE-CROWNED SPARROW. *Zonotrichia leucophrys.* There were without attempting to exaggerate over 100,000 of these sparrows scattered in the Phoenix region. From points twenty miles west, all through the valley of the Salt River, in every gulch and thicket, on every farm and suburban tract where there were thickets, in all the lanes, every gulch and thicket of the higher areas for sixty miles east up to 4,000 feet elevation, these birds were bunched. There were not so many with very conspicuous head markings developed so that I could determine them until April and I was shooting these birds in error. My field discernment on small birds is not as sharp as with some bird friends I know and I finally had to send back home for the bird glasses so that I would not be making kills I did not want. It was not until about April 11 that the flocks about Phoenix cleared out and I was sure glad of higher elevations east of town until April 22. I can thank them, however, for being host to other interesting sparrows that I plucked from their midst. If I had not wished to conserve my limitations more for daily specimens of other material I would have taken more of these sparrows, for I believe that April material would indicate that *leucophrys* and *gambeli* are about equal in numbers upon the Arizona winter range.

PHOENIX, ARIZONA.

GENERAL NOTES

Conducted by M. H. Swenk

Another Snow Bunting Record for Utah.—In the WILSON BULLETIN for June, 1935 (XLVII, p. 160), the writer reported collecting a female Eastern Snow Bunting (*Plectrophenax nivalis nivalis*) in February, 1934, near Provo. On February 9, 1935, he observed three individuals of this species at the same place, one of which, a female, was collected. Both skins remain in the writer's collection.—D. ELMER JOHNSON, *Brigham Young University, Provo, Utah.*

A Savannah Sparrow as a Cowbird Victim.—On June 10, 1935, I came upon a nest of a Savannah Sparrow (*Passerculus sandwichensis savanna*) containing three eggs—two of its own and one of the Cowbird. I succeeded in securing a photographic record of this. For some reason, however, either because it was infertile or because the victimized sparrow refused to incubate it, the Cowbird egg did not hatch, and after the sparrow's pair of young left the nest the parasite egg was found intact, buried in the grass forming the bottom of the nest. —JOHN M. VASICEK, *Cleveland, Ohio.*

A Recent Record of the Hudsonian Curlew in the Chicago, Illinois, Region.—Since the last published sight record, as given by Messrs. Ford, Sanborn, and Coursen (Birds of the Chicago Region, 1934), of the Hudsonian Curlew (*Phaeopus hudsonicus*) is over eleven years old, a new record of the bird in the Chicago region should be of interest. On June 16, 1935, Merrill McGawn and the writer observed one specimen along Lake Michigan, Lake County, Illinois. It was an interesting subject, especially in its flight above the water. The distinct median stripe through the crown was seen while the bird fed along the shore. It seemed attached to a particular feeding ground, and when approached too closely, instead of flying directly away it would circle over the beach, fly over the water before us and land on an opposite point, never flying beyond these points but keeping within the limits. It repeated this performance a number of times.—B. J. BUJAK, *Humboldt Park Station, Chicago, Ill.*

The Starling at Kingfisher, Oklahoma.—Since the normal migration of the European Starling (*Sturnus vulgaris vulgaris*) is being watched with interest and concern by all bird students, I wish to report the following collections by Mr. Cecil Bilger, an F.E.R.A. employee at the Oklahoma Agricultural and Mechanical College. On December 26, 1934, one specimen was taken seven miles northeast of Kingfisher; December 18, 1934, another in a chicken house after nightfall six miles northeast of Kingfisher; and December 31, 1934, one from a large flock of blackbirds seven miles northeast of Kingfisher. These birds are preserved as skins in the Oklahoma Agricultural and Mechanical College collection.

When these specimens were obtained, I had a feeling that this was the farthest west that any of these birds had been taken, but recently I receivd an unofficial report that a specimen had been taken at Alva, Oklahoma, and is in the Museum of the Northwestern State Teachers College.

Mrs. H. P. Holley of Bristow, Oklahoma, reported a flock of twelve that came to feed with other birds in her yard during the winter of 1930. She reports that they have not been seen since that time.—GEORGE A. MOORE, *Stillwater, Okla.*

Migration of Waterfowl in Tidewater Virginia.—My home is on the Lynnehaven River, in Princess Anne County, Virginia, where we hear the "honk"

of the wild goose at eventide very close to us during migrating time. The geese and ducks both spend the night in the tall rushes where sago pond weed and wild celery are found plentifully near by. This year in Back Bay the growth of feed has been ideal, owing to the remedial measures taken by both the Federal and State governments to reduce the salinity of the water, which condition was caused by the overflow of Chesapeake Bay in the storm of two years ago. As far back as the 1880's the hunting and fishing facilities of this county and adjacent waters have made this area a real sportsman's paradise, as is well known. Two years ago, after the Big Storm, quite a tragedy occurred here. Residents far up the river heard terrific shooting at midnight. Investigation found marauders in small boats shooting into the roosting places, killing both geese and ducks by the hundreds, getting a few but leaving most of them to die in the marshes. We had much trouble getting the game warden of the county, who lives at Back Bay, quite a distance. It was too late to make any arrests, but I am happy to say nothing of the kind has happened since and I believe our wild life is now being given good protection.—Lucy Pendleton Kearns, *Lynnehaven, Va.*

The Lazuli Bunting in Northeastern South Dakota.—During the first week of June, 1935, the writer was working on a waterfowl survey in the Waubay Lakes region in Day County, South Dakota, and it was here near Spring Lake that a male Lazuli Bunting was seen on several successive days. The strange thing, however, was the fact that the bird was consorting with two females. One female was an Indigo Bunting and the other a Lazuli Bunting. On every occasion when the male Lazuli Bunting was flushed the two females would also flush. The writer was sorry that he could not stay longer to determine whether both females started nest-building. The location of these birds was approximately thirty miles from the border lines of both Minnesota and North Dakota. The record is interesting in that it shows that previous reports of the Lazuli Bunting in Iowa and Minnesota were not accidental and that this bunting is actually extending its breeding range eastward. The question of hybrids between the Lazuli Bunting and the Indigo Bunting is again brought to mind and suggests that probably such hybrid specimens as taken by W. J. Breckenridge, in Warren County, Minnesota, on June 26, 1929, and by the writer in Cherry County, Nebraska, on June 1, 1932, will be found more frequently by ornithologists of the future.—Wm. Youngworth, *Sioux City, Iowa.*

Nests of Crows and Other Birds in the Same Evergreen Grove.—During the past three springs we have answered a number of calls from farmers in the vicinity of Ames, requesting help in driving away Crows that were molesting small chickens. All of these calls have been from farmsteads in which a few to several hundred evergreen trees have served as quite regular roosting places for Crows during the winter. Observations on our part and by the farm folks have shown that Crows will dispose of a few young chicks when these are accessible close to their roosting places. So far, in the limited number of cases contacted by us, from two to eight evenings of firing with shotguns into the small number of Crows at each roost have sufficed to drive them away until autumn, the larger number going elsewhere to roost, probably in the deciduous woodlands along the streams, since only a few Crows were killed at each grove.

While answering these calls we conjectured as to what would happen if the Crows were permitted to nest undisturbed in a grove of evergreens, and as to

how they would behave toward other birds. This past spring (1935) a closely planted evergreen grove at the north end of the Iowa State College campus, covering a nearly rectangular area of about one acre, and containing red, Austrian, and jack pines on the north half and Douglas fir, spruce, and white pine on the south half, was placed under observation. On April 27, two Crow's nests were observed in the grove, one about twenty-five feet up in a jack pine at the west end of the grove, and the other about thirty feet up in a jack pine a little north of the center of the grove. The adult birds were at the nests at nearly all of the ten visits made by us. The young left the west nest about May 15 and the other nest was vacated May 25. We saw no evidence of the Crows molesting other birds or their nests during about twelve hours of observation made while the adult Crows were at the grove. A Mourning Dove was nesting about fifteen feet up in a red pine about five rods east and three and a half rods south of the central Crow's nest. Another Mourning Dove's nest was built about twenty feet up in a white pine about six rods south and three rods east of the central Crow's nest. A Robin's nest was set fifteen feet up in a Douglas fir about six rods east and three and a half rods south of the central Crow's nest. No other nests were seen in the grove. The Mourning Doves' and Robins' nests were well protected from view in the more densely branched Douglas fir and pines, and, although the data are few, support is lent to a generalization that such good concealment is of value for nesting Mourning Doves and Robins. During the twenty hours of observations, chiefly during the afternoons in late April and May, 319 individuals of sixty-six species of birds were seen in this evergreen grove and in several rods of deciduous trees at its west end.—George O. Hendrickson and Robert Treneman, *Dept. Zoology and Entomology, Iowa State College, Ames, Iowa.*

Observations on Nest Site Trials by the Eastern Robin.—The maneuvers of a male and female Eastern Robin (*Turdus migratorius migratorius*) in several large American elms, approximately eighty feet in height, were noticed on the morning of April 15, 1935, in St. Paul, Minnesota. The day was cloudy and cool and sufficiently early in the season that no foliage hampered observation of the birds in the trees.

They were seen to flit from one crotch to another, in a very random manner, until the entire tree was inspected. Occasionally one bird would fly to an adjoining tree and shortly return to be near its mate. The greatest interest lay in the procedure followed at each visited crotch. The bird would spread its legs in order to support itself with one foot on each of the conjuncting limbs and in this position it would crouch and shift its weight from side to side, and at the same time ruffle its feathers and slightly extend its wings. After several seconds it would reverse its position and repeat the process. In no case did this procedure consume more than a minute's time. The routine appeared to be so similar to the characteristic shifting and turning observed during actual nest building and after nest completion, that it was immediately believed that these birds were giving trials to various sites for their nest.

The Robins evidently preferred to start at the lower branches of the trees, which were twenty-five feet above the ground, and gradually work their way upward until they were approximately fifty feet from the surface of the ground. At this point, the limbs had a tendency to thin and branch out. This was apparently a characteristic without appeal to the birds, for at that height they left with a downward flight to begin over again in an adjoining elm.

The birds disappeared after completing their trials, but on April 29th, when the trees were visited again for observation, a partially completed nest was seen in the last elm. As closely as could be determined, the crotch the conjuncting limbs of which were about five inches in diameter was approximately fifty feet above the ground and formed an angle of about fifty degrees. This is the vicinity in which the birds were last seen during their hunt for a nest site. While the evidence is not positive that the present winged occupants, which at the moment were busily chasing sparrows from the tree, were the birds seen previously, the likelihood is great, for no other nest of any other species could be seen in the neighborhood.—L. J. MEULI, *Lake States Forest Experiment Station, St. Paul, Minn.*

The Song of the Yellow-breasted Chat.—The Yellow-breasted Chat (*Icteria virens*) will sit still in one position for half an hour, if not disturbed, and sing, mocking the Crested Flycatcher, Brown Thrasher, Red-headed Woodpecker, Blue Jay, Bob-white, and many other nearby birds. He has the habit of saying "*Ur ur ur ur ur ur ur ur*" either eight or sixteen times, as a rule, similarly to the Red-headed Woodpecker, then may say it once or twice alone. One said "*Ke-ouck*" six times, almost like a little turkey, seeming to dare one to approach. If mocked, he repeats the call, often saying "*ur*" for a number of times, then "*tut tut tut*" about the same number of times, changing back then to "*ur*" again, first one way and then the reverse. I have never heard two chats sing exactly alike, so it takes some study to be able to tell them at once by their calls, although all of them generally say the above two notes occasionally, no matter what their song may be. The bird often sits in the top of a dead tree, with head up and tail bent down, for long periods of time, then will disappear and appear again, often at close range if not frightened.

If mimicked, he will approach cautiously, giving the note "*kuk*" in a soft tone. This note is used only at such times, when it is answered in the same tone. I have stayed in our car, calling and answering him, until he came right up to me and crept under the car and out on the other side, trying to find out what it was all about. I believe I was waving a red flag in his face when I spoke in his own tongue, which to me was not translated into English exactly, although I figured it out pretty well from his actions.

The Quail often says, "*Bob, bob white*", but the chat never does. He either says "*Bob white*" or just "*white*", in a hesitating and uncertain manner, as if not quite sure of himself. One chat said plainly, "*cack*" either three or six times, then "*ur ur ur*" from one to six times, then "*ah ah ah*". Although the chat, Brown Thrasher, and Catbird are seldom seen together, they of course may be in the same woods and within calling distance of each other. All of these birds are mockers. The Red-headed Woodpecker has a common call of "*ur ur ur*" given a number of times very similarly to the chat, but it never substitutes the "*tut*" or "*cack*" or "*ah ah ah*" intermittently, as does the chat. But the red-head often changes from the "*ur*", which he says on certain occasions, to "*error, error, error*" which is also just as commonly heard at times. This particular note is his species "trade mark", as I like to call any special markings, notes, habits, or other traits of birds. When the chat mimics other birds, even though he does a good job of it and fools one at times, if we wait a bit and continue to listen, sooner or later we can hear the "*ur ur ur*" interchanged with the "*tut tut tut*" or other variations of the chat's calls, which will give him away, and we may then stamp his "trade mark" upon him with certainty. If we look closely enough and study

birds for their own characteristics, we may learn the individual qualities belonging to them alone, and by which we may know them—their own "trade marks". —Mrs. Horace P. Cook, *Anderson, Ind.*

An Unusual Banding Experience.—The evening of December 24, 1934, was one of sleet, rain, and snow alternating. It was not very cold but was unusually disagreeable; consequently, wild life, as well as man, sought shelter early in the afternoon to avoid the battling elements. One section of my artificial shade, built for the purpose of protecting various native and medicinal plants, the shade proper being composed of brush and cornstalks, passes very close to my east study window. Ears of corn are often left attached to some of the stalks when placed on the frame-work and brush in the fall, and this furnishes considerable food each winter for five or six pairs of Eastern Cardinals (*Richmondena cardinalis cardinalis*) that are resident on the premises at all times. They appreciate this huge post-supported pile of "debris", and, together with great numbers of Slate-colored Juncos (*Junco hyemalis*), utilize it as a roosting place throughout the winter months. This evening, however, the birds must have found their shelter insufficiently water-proof, for shortly after supper, as I sat reading at my desk, I was attracted by a bird fluttering against the window beside me. I opened it and a Slate-colored Junco fluttered in. I experienced little difficulty in capturing it, but, when preparing to band it, another sought admittance. This was granted and the two were banded. Shortly thereafter two more were taken in this manner, and both at about the same time, though one entered by the same route as the first two while the other was admitted through a window in an adjoining lighted room. Later in the evening another junco, the last, was taken in this room. Four of the five juncos were males.

After the last junco was taken I decided to try a little experiment. I placed lamps close to the opened windows and sent my brother-in-law, armed with an old broom, to disturb the birds' slumbers, hoping thereby to entice more of them inside. However, we had not the success that chance could boast, for the rudely awakened juncos shot bewilderingly out of the brush, fluttered upward and away. But one bird, a female Cardinal, the only Cardinal seen, though others were heard, was captured. The birds were banded, caged for the night and released the next morning. Hereafter I shall be tempted to light all rooms and open all windows on stormy nights.—Grant Henderson, *Route 6, Greensburg, Ind.*

Behavior of a Pet Robin.—One cold, wet morning in June we found an unhappy young Robin. He was taken into the house, warmed, and then fed upon earthworms, hard-boiled yolk of eggs, flies, and chopped raisins. He thrived very well on that diet, and soon grew to full size. In a short time he became very tame, and would allow us to pick him up, answer our calls, and alight on our hands—and also on our heads, which we did not enjoy so well. He became especially fond of the master of the house, and would fly to meet him when he came in. When the master sat down to read, the bird would often sit on the back of his chair and talk to him in a low tone, or play with his hair and glasses, or, sometimes, go to sleep. He learned other ways of playing. When the young lady would flirt a handkerchief at him he would snap at it. If she threw the handkerchief over his head, he would back out, then run toward her and snap his bill. When he became tired he would fly up and alight on her head.

In the mornings he often would fly upstairs and sing until someone opened a bedroom door. Then he would enter and amuse himself in various ways. Some-

times he would look at himself in the mirror. Again he would pull the pins out of the pin-cushion or throw the cuff buttons and collar buttons to the floor. At times he would play with a ball of string, much like a kitten.

After the Robin had been with us for about six weeks we found another orphan bird, apparently a kind of vireo. We were not having much success in feeding this young bird, when the Robin flew up with a fly in his beak. We lifted the vireo close to him, and he deftly inserted the fly into the vireo's throat. From that time on the job of feeding the young bird belonged to the Robin. When the vireo cried, as he did most of the time, the Robin would fly into the plant room and dig up a worm, pick it to pieces, and feed it to the nestling. This continued for three days, when the younger bird died.

But on that same day the Robin heard the call of the wild, flew out of the basement window, over the garden wall, and out of sight. Twice he returned to the garden, but seemed very shy. Once in a while he came to the porch to receive raisins, which I even put in his mouth, but he soon disappeared and did not return. If he returns in the spring we will recognize him, for we had an aluminum band placed on his leg before he departed.—Mrs. Angela Harte Favell, *Superior, Wis.*

A Clever Bird or Two.—One day I looked out of my window and saw a Red-breasted Nuthatch at my suet cafeteria, busily engaged in eating his lunch. But his meal was arrested by the swift flight of a Hairy Woodpecker, which suddenly appeared at the table, giving a sharp note as he descended upon the feast. The startled nuthatch disappeared quickly from the scene, but almost at once reappeared on the ground under the suet and looked up and waited expectantly for the crumbs which were starting to fall from the aforesaid woodpecker's table. As they fell, the clever little bird ate his fill of the crumbs which were already prepared for him in small bites. The woodpecker did not seem to notice that he was also feeding the nuthatch below, but ate till satisfied, as did the nuthatch on the ground below. Then each bird went his way.

At another time I saw a Downy Woodpecker feasting at the feeding table, paying no heed to a half-dozen English Sparrows on the ground under the suet, also getting their fill of suet crumbs as he let them fall. Another day I watched a Downy Woodpecker working at the suet on the tree, eating what he wanted and then filling every crack and crevice in the bark with food for future use. When he had finished, away he went, probably intending to return and feast again when hungry. But no sooner had he gone than an intruder appeared in the form of a nuthatch with similar intentions. The intruder crept over the tree, seeking out and collecting the hidden suet from the cracks and crevices of the bark as fast as he could work. Birds are very clever at such tricks, which Nature has taught them.—Mrs. Horace P. Cook, *Anderson, Ind.*

ORNITHOLOGICAL LITERATURE

WILD BIRDS AT HOME. By Francis Hobart Herrick. D. Appleton-Century Co., New York. 1935. Pp. i-xxii+1-345. Figs. 1-137, and frontispiece. Price, $4.00.

Those who were interested in bird study thirty years ago will remember Dr. Herrick's book, "The Home Life of Wild Birds". In some ways this book marked the beginning of a new period in ornithology. It taught the growing hosts of bird students how to use the bird-blind. The reviewer has never been quite certain who is entitled to the credit for the introduction of the tent-blind or umbrella-blind. But there is glory enough for all, and Dr. Herrick's practical demonstration of the method must have stimulated many other workers in the same direction. The three decades since have witnessed more careful and more critical study of the bird as a living animal than in all previous time.

Dr. Herrick's present work is perhaps not so much an exposition of a method, as a summary of the results of the method developed thirty-odd years ago. It is a book which discusses the most profound problems in bird behavior, and yet one which may be taken to an easy chair and read for hours without mental fatigue or monotony. Practically all phases of the bird's home life are discussed, and with more than ordinary understanding of the psychological principles involved. The numerous illustrations are new and original. Literature citations are given in foot-notes, rather than in a terminal bibliographic list. Dr. Herrick has made another contribution to ornithological literature.—T. C. S.

ZUR BIOLOGIE DES REPHUHNS (Biology of the Hungarian Partridge). By Dr. W. Nolte. Published under the auspices of the Reichbundes Deutsche Jägerschaft (National German Hunters' Association). Publisher, J. Neumann, Neudamm, Berlin, 1934. Pp. 105.

This new booklet on the biology of the Hungarian Partridge (*Perdix perdix*) in Germany should be of particular interest to American ornithologists and sportsmen for two reasons.

First, it parallels the University of Michigan's recently published study of this bird by Yeatter,[1] and the Oxford University study now under way by Middleton,[2] without any awareness of similar work under way in the English-speaking countries, or vice versa.

Secondly, it illustrates certain basic differences in game management research, organization, and methods, from which mutually profitable deductions may possibly be drawn.

Dr. Nolte's study was undertaken because the 1932 partridge crop was bad, and the 1933 crop spotty. (This illustrates an important point: game research in Germany is a matter of finding the cause of specific difficulties encountered in actual practice; with us it is an attempt to build comprehensive biological foundations for a practice which is hoped for, but does not yet exist).

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[1]Yeatter, Ralph E. The Hungarian Partridge in the Great Lakes Region. Bul. No. 5, School of Forestry and Conservation, Univ. of Michigan, Ann Arbor. December, 1934.

[2]Middleton, A. D. The Population of Partridges (*Perdix perdix*) in 1933 and 1934 in Great Britain. Jour. Animal Ecology, Vol. 4, No. 1, May, 1935, pp. 137-145.

The project was sponsored and financed, not by universities or by bureaus, as with us, but by the national sportsmen's association (Deutsche Jägerschaft). Membership in this is now universal, being paid for as part of the hunting license fee (which, by the way, is the substantial sum of $12). There is now only one national association, and it is strongly affiliated not only with the Reichsjagdamt (Biological Survey), but with its official mouthpiece, "Die Deutsche Jagd", published by the publisher of this booklet.

The technique of the study follows from these premises: funds were limited and an answer needed quickly, so the technique consisted not (as with us) of a field study in a limited locality to decipher the basic ecology of the partridge, but rather of a compilation and analysis of hunters' reports and weather data for all Germany. The technique, in short, is an attempted correlation starting with an inferred premise (that weather governed the crop). This is the method of my "Game Survey", not the method of Stoddard, Errington, Schmidt, Wight, Yeatter, et al.

Dr. Nolte's findings are in many respects startlingly similar to Yeatter's. I here give his own summary, supported by interpolated explanations from the text, and from the American and English studies in so far as published:

1. The partridge is a prairie bird (Steppentier), which finds its optimum range on loessial soils, which are "warm" soils.

2. On "cold" soils heavy populations are attainable only by drainage.

3. Heaths and moors are "cold". They delay the nesting.

(Maxwell, Page, and other English authors point out the unsuitability of heavy soils. Yeatter found fair populations on heavy lake-bottom in Michigan and Ohio, but these are all tiled and drained, as is much of the northeast Illinois and Iowa-Minnesota range. The outstanding confirmation of Nolte's assertion, however, lies in the superior density of partridge in the Canadian wheat prairies, and in the semi-arid regions of eastern Washington and northern Montana).

4. Small management units are not favorable.

5. Breaking new land damages the partridge stand. (I think he means the breaking up of the remnants of grass cover).

6. Feral dogs and cats are bad. The worst predator is the free-ranging sheep dog and his progeny.

7. Weasel, iltis, and fox have no effect on the partridge crop.

8. Raptorial predators have virtually no effect. The goshawk and perhaps the female sharpshin, are definitely damaging, and in winter the migrant roughleg.

9. The horned owl kills partridge, but *because of its rarity such depredation is to be endured* (see American Game Policy on rare predators!). Whether swamp owls, when abundant, influence the crop remains undetermined.

10. All these predatory birds were too scarce in 1932 and 1933 to produce appreciable damage.

11. The raven is too scarce to influence the crop.

(It is interesting to note that all these conclusions on predation are drawn from geographic correlations, not from food habits research. Thus, if a good partridge crop occurred where these predators were present, and also where absent, the conclusion is that they have no effect. I see here also the influence of the strong German movement for "Naturschutz" (nature protection), one of whose tenets is, of course, moderation in predator control).

12. Mouse years are partridge years (an interesting side-light on the wild life cycle).

13. Food shortage during the vegetative period can occur only during drouths.

14. It is improbable that the partridge needs drinking water when there is enough dew.

15. Poisoned wheat, properly put out, may not be dangerous, but arsenicals are probably (always) dangerous.

16. The influence of pheasants on the partridge is still controversial.

(Dense mixed populations are alleged to occur in Bohemia, but in many other localities increase in pheasants shows decrease in partridge. Nolte thinks the competition may occur only during nesting, and only when both species are dense. He pleads for special research on this question).

17. The existence of contagious diseases is not proved.

18. Dangerous fighting between cocks during mating is doubted.

19. "Peepers" (immature young) should be shot off. The question of whether they in turn breed "peepers" (because of immaturity and consequent late nesting) is unsolved.

20. Small coveys of well-grown birds are perfectly good breeding stock.

21. Albinos should be preserved for their research value (i. e. as marked birds whose behavior and longevity can be observed).

22. Old and young hens are equally valuable as breeders. The latter may lay more eggs, but the former are safer mothers.

23. Longevity is unknown. One white hen is known to have raised a large normal brood for four successive years.

24. Migration in partridge is not proved.

(But in October, 1911, partridges appeared in the mountains at a point thirty-nine air-line miles from an inhabited range. Partridges are known regularly to evacuate southwestern Memel. Drowned partridges have been found far from land. In 1932 drifting flocks appeared on the shores of the Main in Bavaria, and later disappeared. Some localities have partridges in winter only. I am reminded forcibly of Audubon's descriptions of the fall shuffle in quail, and the endless subsequent discussions on "migration").

25. The alleged migration is a "shuffle".

26. The spread of "technical"[1] agriculture is injurious to partridge only where it affects environment (a truism!).

27. Grazing is always injurious to partridge.

(This I think is an unscientific assertion. It might, in too-heavy cover, be beneficial).

28. Vineyards and nurseries of large size can serve as refuges.

29. The partridge crop depends on which field crops start growing first. If grain springs up before clover and alfalfa, they nest in grain and are safe. If, however, the clover or hay springs up before the grain, there is heavy loss (of nests) in mowing. (This is precisely Yeatter's conclusion).

30. Partridges are not adaptable to climatic fluctuations.

31. Planting stock is best obtained from less favorable climates.

32. Every range has an optimum breeding density determinable by experience. It is useless to hold over more stock than this optimum. (This fails to assert that the optimum can often be raised by environmental control, and coincides with the rarity of actual range-improvement measures in Germany).

33. Plantings on empty range are best made in dry years, and have no great effect until the second of a succession of good years. In wet seasons the birds evacuate "cold" soils.

34. On bare agricultural areas the partridge must be winter-fed.

35. Satisfactory dog-hunting is possible only in good cover. Without cover the birds "pack" and are wild.

36. The welfare of partridge is directly proportional to sunshine, warmth, and dew, and inversely proportional to rainfall.

(Nolte elaborates this in the form of a mathematical formula:

$$A=\frac{wt}{n} \cdot C$$

where A is population or yield, w is solar energy as expressed in sun and warmth, t is dew, n is rainfall during the breeding season, and C is a constant representing the optimum breeding density for the particular range).

Taken all together, this piece of work exhibits a keen insight into ecological fundamentals. One can not help but wish that such a man might have the benefit of the inductive method initiated in America by Stoddard, as well as financial support for a trial of this method in Germany. This otherwise over-long review is to give American game managers at least a bird's-eye view of his conclusions. —Aldo Leopold, *Berlin*, October 12, 1935.

Familiar Birds of the Pacific Southwest. By Florence Van Vechten Dickey. Pub. by the Stanford University Press, Palo Alto, California, 1935. Pp. i-lviii +1-241. Col'd plates, 102. Price, $3.75.

One of the most pleasing bird books we have seen is presented under the above title. It may be regarded either as a pocket field guide or as a delightful desk book. The large number of beautiful, colored plates is the most important feature of the book. These are described as "full color reproductions from photographs chiefly by Donald R. Dickey", to whose memory the book is dedicated. We judge that most of these photographs were made from life, though we do not find such a statement. Their coloring brings out the field marks very clearly, and they serve well for the purpose of identification.

The text is presented in two parts, first a key, then descriptions of the various species included. In the key the first division is based on size, the second on color, and the third on various physical characters. The descriptions are designed wholly for the student in the field, with technical anatomical phraseology omitted. It is just the kind of a popular field guide which we wish might be prepared for the middle west, now that both coasts have one. We observe that about sixty-three species (not necessarily the same subspecies) of the 163 species considered are also found in the middle west. So, the book will not be without practical value in this region. As a pleasant avenue of extending our acquaintance with western birds the little book is at present without a peer.—T. C. S.

The American Eagle. A Study in Natural and Civil History. By Francis Hobart Herrick. D. Appleton-Century Company, New York. 1934. Pp. i-xx +1-266. Figs. 1-94 and frontispiece. Price, $3.50.

Professor Herrick's studies on the American Bald Eagle are pretty well known from his occasional reports in the current literature. This book is a summary of these studies, which, apparently, began as long ago as 1900. Probably

no other intensive bird study ever attempted covers the life history of a species as completely as does this one on the eagle. Not only have the studies been carried on throughout a very long period of time, but the enormous towers erected for the purpose of the study are unique in the history of bird study methods.

The story of the method of studying the eagles from high steel towers is fully told. This, in itself, is interesting enough. The catastophic endings of certain great nests bring tragedy into the picture. We do not like to use the word romance in this connection, but results came, nevertheless, and Professor Herrick goes into the psychological analysis about as far as any author has gone. The daily routine, the life-history story, is told in detail.

Several extra-ornithological chapters are offered at the end of the book, viz., "The Eagle as Emblem", "The Eagle in Apotheosis", "The Eagle with Two Heads", "America's National Emblem", "The Numismatic Eagle", all of which make an interesting climax to the eagle story.

Since the question of what subspecies of Bald Eagle is the breeding form along Lake Erie has been frequently raised, we expected that this matter would be disposed of by Dr. Herrick. But, so far as we can discover, he has not committed himself in this book. Of course, the matter of subspecies is of very little consequence in life-history studies—it is more a matter of curiosity rather than of scientific importance. If Dr. Herrick does not know what subspecies he has been working on for thirty-five years, so much the worse for the subspecies. If he thinks the matter is of too little importance to treat in his book on these eagles the rest of us can breathe easier when thinking about it. This is another book for the easy chair, and will dispel the worries of any ornithologist on a long winter evening.—T. C. S.

THE PASSENGER PIGEON IN ONTARIO. By Margaret H. Mitchell. Published under the Reuben Wells Leonard Bequest as Contribution No. 7 of the Royal Ontario Museum of Zoology. 1935. Univ. Toronto Press. Pp. 1-181. Price, $1.00 in paper, $1.50 in cloth.

While this paper deals primarily with the nesting and migration of the Passenger Pigeon in Ontario, yet the entire life-history is discussed in more or less detail, thus making the paper one of general interest. The author makes free use of the literature on many points, but the original material was derived from replies to a widely distributed questionnaire, which was circulated in 1926 from the Royal Ontario Museum of Zoology. While perhaps the best contributions relate to local nesting colonies, distribution, and migration, yet the features of most interest to the reviewer are those of the general life-history.

Thus, the author presents a very full discussion of the food habits of the Passenger Pigeon—about the most complete account we have seen. The question of the number of eggs in the clutch is raised again, but the answer is no more conclusive than in previous accounts. Under the heading, "Economic Status", the birds are considered as destructive agents and as a source of food supply or income for the pioneers; methods of trapping and marketing are fully treated.

The author thinks that the extermination of the Passenger Pigeon was a gradual process—not as sudden an event as many have affirmed—and that no one cause is to be credited alone for the outcome. Among the most important factors which combined to reduce the birds below an "optimum population density" are considered the "clearing of the land", "disease", "market hunting", etc. A

"psychological effect" of diminished numbers as a contributing cause of extinction is suggested, but without sufficient discussion of its probable nature and mode of operation on a population. The suggestion merits further investigation.

The report is splendidly embellished by a reproduction in color of a painting of the Passenger Pigeon made in 1835 by William Pope. This portrait is one which was not included in Shufeldt's catalogue of Passenger Pigeon portraits in the *Scientific Monthly* (XII, May, 1921).

A bibliography of 196 titles, many of which are obscure, adds much to the general value of this work, which we may regard as an excellent contribution on the subject.—T. C. S.

Birds of Jehol. By Prince N. Taka-Tsukasa, Marquis M. Hachisuka, N. Kuroda, D. Sc., Marquis Y. Yamashina, S. Uchida, D. Agr. Sect. V, Div. II, Pt. III, of the Report of the First Scientific Expedition to Manchoukuo. Pp. 1-91, pls. 1-28. April, 1935. Waseda University, Tokyo, Japan.

The Report is printed in both Japanese and English, and is based upon material collected in 1933 by Messrs. Mori and Kishida. The authors, as enumerated above, were commissioned by the Ornithological Society of Japan to make the identifications and prepare the report. The seventy species listed belong to twenty-seven families and thirteen orders. The report contains twenty-eight colored plates, which illustrate forty of the forms listed. Many of the species have a much wider range throughout Asia, only two of which are found in the A. O. U. Check-List. The plates are excellent, and make the bird the outstanding feature; the background is a color wash which strengthens the bird portrait.—T. C. S.

Michigan Waterfowl Management. By Miles David Pirnie, Ph. D. Michigan Department of Conservation. Lansing, 1935. Pp. i-xxii+1-328. Figs. 1-212. Price, $1.50.

The literature on the subject of game management is growing very rapidly, and is of all sorts—propaganda, technical papers, and digested summaries. The title just listed comes under the last classification. It deals, of course, only with the ducks and geese. And while the emphasis is placed on conditions in Michigan, yet the amount of general material is great, and we know of no other available work that comes no near being a textbook on the subject covered.

Chapter I (57 pp.) gives a non-technical description of all the ducks and geese which occur in Michigan, and this includes all the common species of the interior. This is followed by chapters on the numerical status of waterfowl, on natural enemies (including predators and disease), and on methods of hunting waterfowl. The greater part of the book deals with "management", and this includes chapters which discuss the legal regulation of hunting, refuges and sanctuaries, the problem of food and food planting programs, propagation, predator control, restoration of breeding grounds, etc. An appendix includes a very useful key to the more common pond and marsh vegetation, which, together with the nearly fifty photographic illustrations of such plants, presents the student with a most helpful means of becoming acquainted with that phase of the birds' environment. This outline will give the reader some conception of the ground covered in the book, but it can not show how readable the book is. We must add, therefore, that the book is well written, and makes interesting reading whether the reader be a hunter, an ornithologist, or a nature lover.

An incidental thought brought up by this book is its relation to a developing profession. As our country is becoming conscious of the importance of its wild life, steps are being taken slowly, but perhaps surely, to preserve what is left. To thus save the wild life of the continent will require the services of many trained experts. This means a new profession, and a new problem for educational institutions. Some few colleges and universities will have to prepare young men for this field. It is interesting to observe that trained minds are at work collecting, sorting, systematizing the facts which are to form the foundation of this new science. It means that young men who are so inclined may take up the subject of ornithology seriously, with the thought of making it a life work in its applied aspects. The trend of the times is in this direction.—T. C. S.

Systematic Status of Some Northwestern Birds. By H. S. Swarth. Condor, XXXVII, 1935, pp. 199-204.

Swarth presents an argument to show that there is not good ground for distinguishing the two subspecies of *Tringa solitaria*, viz., *solitaria* and *cinnamomea*. Likewise, the validity of *Falco columbarius bendirei* is questioned. We suspect that the future will witness a questioning of many present-day subspecies, and the elimination of many of them from official check-lists. The chief difficulty has been a lack of a sound criterion of subspecies. Another difficulty has been the ease with which a proposed subspecies can be foisted upon the ornithological literature. The burden of proof has been placed upon the scientific public rather than upon the describer of the proposed subspecies. The pernicious custom among systematists of naming new forms after each other has bred a class of polite gastons instead of a class of rigorous scientific critics.—T. C. S.

A Popular Account of the Bird Life of the Finger Lakes Section of New York, with Main References to the Summer Season. By Chas. J. Spiker. Roosevelt Wild Life Bull., Vol. 6, No. 3, 1935. Pp. 391-551. Figs. 228-284.

Another splendid bulletin from the pen of Mr. Spiker. The many excellent photographs are by the author and the late C. F. Stone. These photographs illustrate the various bird habitats, and should be a welcome aid to the student of birds in this region. An enlarged map of the entire Finger Lakes region is also included.

The introduction presents a description of the topography and habitat areas of the region, as well as of the topography of the various State Parks of the Finger Lakes area. The bulk of the text consists of descriptions of the distribution, habits, and migration of the common birds; the style is non-technical, and suitable alike to the younger and the more advanced student. These notes are based on the author's personal observations during his several years of connection with the Roosevelt Wild Life Forest Experiment Station.—Wm. Youngworth.

A Contribution to a Bibliography of the Described Immature Stages of North American Coleoptera. By J. S. Wade, U. S. Bureau of Entomology. 1935.

This paper consists of 114 mimeographed pages. It does not deal with birds in any way, but is an unusual and valuable piece of work for entomologists. We do not know where it is published, nor how it may be obtained, except through the author.—T. C. S.

WHITE HERONS IN INDIANA. By Amos Butler. Reprinted from Proc. Ind. Acad. Sci., Vol. 44, 1935, pp. 228-230.

Dr. Butler presents here a brief account of what is known concerning the three species of white herons as breeding birds in Indiana.—T. C. S.

A STUDY OF THE SHARP-TAILED GROUSE. By L. L. Snyder. Univ. Toronto Studies, Biol. Series, No. 40. 1935. Pp. 1-66.

The study deals with population cycles, seasonal distribution, food, migration, and taxonomy of the various forms of the species named. Much new material is introduced.—T. C. S.

The *Migrant* for September, 1935, is an exceptionally interesting number. It contains too much good material for the reviewer to handle properly. Several authors jointly present a "History of the Tennessee Ornithological Society". "Early Reminiscences", by Dixon Merritt, "Biographical Sketches of Founder Members", by George R. Mayfield, "Among Our Contributors", are articles which continue the account of the activities and the leaders of one of the older state ornithological societies. Four pages of portraits and snap-shots complete a record which will be received with satisfaction by all who are engaged in similar work. Our attention is taken especially by an article entitled, "A T. O. S. Annual Field Day", by John Craig. The author is a stranger to us, but we salute him as a master of descriptive writing. Besides furnishing the bird lover with a very entertaining account of his favorite pastime, we consider this article to present the best single bit of propaganda for the study of birds (without a gun), extant. It would be fine if this article could be reprinted in quantity for public use. A reprint sent to a hunter friend might make many a convert to the use of a field glass.

The *Redstart* continues to appear regularly at monthly intervals. The September number contains a very well thought out statement by Mr. J. W. Handlan on the two opposing views of wildlife conservation. We find ourselves in agreement with it. With this number Mr. T. E. Shields relinquishes the editorship. Mr. Shields is entitled to a hearty "Well Done" for his services in conducting the *Redstart* through two complete volumes. Much ornithological material of local importance has been preserved, and no doubt much good has been accomplished in uniting the efforts of bird lovers in West Virginia. The October number begins a new volume (III, No. 1, 1935) under the editorship of Mr. J. W. Handlan, whom we welcome into the fold.

The *Prothonotary* is a new mimeographed publication issued by the Buffalo Ornithological Society, and is being issued monthly. Anyone may subscribe at fifty cents per year. Each number contains a record of the month's weather conditions, noteworthy records of birds, and news of the activities of the members. It is edited by Mr. Harold D. Mitchell, 378 Crescent Ave., Buffalo, N. Y.

The *Snowy Egret* for Autumn, 1935, (Vol. X, No. 1), appears in a smaller and more attractive format. Articles are by Mr. H. A. Olsen, Mr. R. E. Olsen, and Mr. O. M. Bryens; and notes are reprinted from Audubon and Thoreau. Publication is now dated at Pippapass, Ky., and the paper continues to be directed by the Messrs. Olsen.

EDITORIAL

We can not be sure that this issue will reach our readers much in advance of the Annual Meeting on December 29-31. While *Science* included the W. O. C. among organizations having headquarters at the New Jefferson Hotel, we presume that Secretary Hicks' letter is correct in assigning us to the Melbourne Hotel. A special tour of the Missouri Botanical Garden (Shaw's Garden) has been arranged for Saturday (the 28th, 1.30 P. M) for our members. A field trip is also planned for Sunday morning. For details of these excursions consult the Local Chairman, Mr. A. F. Satterthwaite, 118 Waverly Place, Webster Groves, Mo. Monday and Tuesday will be filled with the program of papers, with the annual dinner on Tuesday evening.

Two general invitations for coöperation have reached this office. One is from the National Association of Audubon Societies, to the effect that data are being gathered for a popular booklet on the owls. It has not been decided at the present time whether this material will be incorporated in a second edition of Dr. May's book on the hawks, or issued as a separate and similar book on the owls alone. In either case the Association will be glad to receive any notes on the distribution, food habits, and behavior of all North American owls. Such contributions may be addressed to Mr. Warren F. Eaton, in charge of the N. A. A. S. Hawk and Owl Campaign.

The second invitation relates to the series of life history bulletins by Mr. Arthur Cleveland Bent, issued by the United States National Museum. Mr. Bent informs us that since Bulletin 162 on the gallinaceous birds was published in 1932, the manuscripts have been completed for two volumes on the birds of prey, including the vultures and owls. As yet these volumes have remained unpublished because funds were not available for the purpose. There seems to be some hope that at least one of these volumes may appear during the coming year.

However, Mr. Bent is continuing his labor on a third volume, which will be the twelfth in the series, and which will cover the groups of parrots, cuckoos, kingfishers, woodpeckers, goatsuckers, swifts, and hummingbirds, and in the sequence of the third A. O. U. Check-List. Mr. Bent is now ready to receive notes on habits and photographs relating to any of the birds in these groups. There is no doubt about the wisdom of carrying forward the completion of these manuscripts, and hoping for their publication at an early date. Those who are in a position to do so will undoubtedly assist by sending their contributions to Mr. A. C. Bent, Taunton, Mass.

The Index has been delayed but will be printed and furnished to all members and subscribers.

SUPPLEMENT TO
THE WILSON BULLETIN
March, 1936. Part 2.

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